

Recipe for **Survival**

**A homesteading guide for putting
self-sustained food on your off-grid table.**



Nicholas Hyde

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Introduction

Becoming self-sufficient for your personal food consumption needs is a project worthy of your efforts. I doubt that there is a more satisfying way to actualize the American dream than standing out in your yard, looking around, and realizing your family will never be hungry – come what may for the rest of the world. City life could never be this fulfilling.

Could you provide your own food and keep your family healthy, right now, if forced to? In today's society, most people would be scared to death at the mere thought of facing such a situation. Citizens two generations ago would be laughing at us now. We have lots of fancy techno-gadgets, but we don't even know how to feed ourselves. In our grandparents' day, such basic survival skills were common knowledge, something you learned as you were growing up. Unfortunately, it has become something of a lost art. The dependent nature of our modern existence is not only pathetic, it's downright frightening.

People today seem to know even less about nutrition than they do about rural survival. It's going to get ugly when the grid shuts down and the drive-through windows with the 99-cent value menus are all closed. Diseases like scurvy, thought to be a scourge of centuries past, wait in the wings to make their reappearance. You don't have to be one of the sick and starving masses mobbing your state capital and waiting in bread lines when that happens. You can learn how to become self-sufficient for all your food needs now. It's a wise homesteader who prepares for tomorrow's bad days during the good ones today.

No doubt, that's why off-grid survival education and prepping materials are suddenly in high demand. All over the internet, survival forums are bursting with new members. The increasing frequency of national disasters is only partly responsible for this trend. The plain truth is ordinary people in western society no longer trust their government to provide for their needs. As we witness inexcusable wasteful spending and mounting national debts, we know something has to give, probably sooner rather than later. The recent financial crises in countries like Greece and Italy may only be the tip of the iceberg to come. It doesn't take a crystal ball to understand the ability to provide for yourself is the only real form of security in the future.

It is the goal of this book to make you food self-sufficient, or at least arm you with enough knowledge to be ready to change lifestyles at a moment's notice. If you have a little plot of land out in the sticks somewhere, you can plant olive, nut, and fruit trees now. You can prepare your soil to make it good to go in the near future for various types of gardening and micro-farming. We'll show you how to allocate your acreage for efficient usage. You'll be way ahead of the game when the time comes to bug out of the city.

One of the reasons I wrote this guide is because other food self-sufficiency books I have come across are sadly lacking important information, especially when it comes to addressing fundamental nutrition needs. Having a few chickens and doing some spring-through-fall vegetable gardening isn't going to cut it. We need to make sure we

have a wholesome, balanced diet year-round which includes starchy complex carbohydrates. Also, I have yet to see any survivalist information in print which advises using the seasons to help your efforts, as opposed to fighting them. You can't fight Mother Nature, so let's put her to work for us instead and have a much easier go at it. Our plan will bend with the seasons and utilize them appropriately. You will have summer fruits and vegetables, and winter fruits and vegetables. Some of them will be preserved so they can be enjoyed during the off-season.

Properly preserving and storing food also gives you a supply of trade goods. This is something that should be strategically determined in advance, before allocating your land for specific farming projects. No matter how far out in the sticks your home is, you will have neighbors. They will have their own food production priorities, and their own specific storehouses from the excess. It greatly behooves you to meet your neighbors and discuss farming strategies with your fellow homesteaders. If somebody down the road already grows a large supply of quinoa, perhaps you should grow buckwheat or sorghum instead, or whatever starch source best serves the local community needs. Hey, relax – we aren't talking about becoming a production farmer here. This can all be done on a small scale, and if you are the reclusive type, you don't need to trade with your neighbors to enjoy a plentiful existence off the grid.

What about salt, sugar, spices, vinegar, and oil? Have you ever thought about continuing to meet those needs after society collapses? Not just for cooking – the body actually needs these things. What about your precious five o'clock cocktail? Is life really worth living without that? Your animals will need to be fed as well - does your current plan include providing for them? We will go over all of this, plus other important topics such as fashioning equipment and practical food storage solutions. I will even leave you with ten of my favorite off-grid dinner recipes, using the food sources you will learn to provide for yourself in this manual. Hopefully, you will come away from the following material as a not-so-lean, no-reason-to-feel-mean survival machine.

Imagine standing in your yard as a beautiful sunset hovers over some troubled city on the horizon while you survey your trees, garden, animal pens, and storehouses of preserved food. Your best dog chases your wayward goat back to his pen as you smell another delicious dinner cooking from your stove, something you haven't had in a while. You lift a glass of homemade wine or cider to your lips and realize that life is good – well, for you and yours, at least.

Nutritional Priorities

While temporary survival situations justify living from meals of opportunity, with any nutritional benefits being purely coincidental, off-grid living situations do not. The human body requires a variety of food types in order to remain healthy over any extended period of time. To meet these needs, a homesteader must plan in advance. Your personal food production plan should take into account the size of your land, quality of the soil, climate, proximity to wild food sources, and possibly the food production plans of your neighbors.

As mentioned in the last chapter, diseases of malnutrition await those who neglect the body's needs. Scurvy, in particular, was once a serious threat to those who were removed from vitamin C sources and subsisted on diets of meat and grains alone. Sailors, pirates, soldiers, and gold miners were at high risk for this disease. Long ship voyages in the Middle Ages would outlast their produce supply by such extended periods that entire shiploads of people were known to die from scurvy. In the Alaska gold rush towns, smart operators who received shipments of cantaloupes would sell them on the street corners for outrageous prices and come home with more gold than the miners.

Scurvy is rare in modern society, largely due to the vitamin supplement industry. In an off-grid survival situation, however, you will need to keep yourself constantly supplied with vitamin C sources from homegrown produce. Thankfully, these types of fruits are prolific and there are varieties which will grow in any climate. Tomatoes, for example, are an excellent source of vitamin C and can be grown year round, indoor and out. It is a wise homesteader who dedicates himself to large yields of tomato crops. They are a major staple when it comes to cooking, and they preserve wonderfully via basic *hot water bath* canning.

When a child is weaned from breast feeding, it is important to put them on vitamin C foods immediately. Young kids will take to orange juice, apple juice, and berry preserves readily, all which are abundant sources of vitamin C.

Some yield-efficient vegetables are rich in vitamin C as well, including potatoes. Others include bell peppers, cabbage, broccoli, carrots, and spinach.

The human body requires a combination of six basic nutrients in order to remain healthy: protein, fats, carbohydrates, minerals, vitamins, and water. While vitamins and minerals are vital, our need for them is minimal compared to the need for protein, carbohydrates, and fat. Most important are complex carbohydrates, which we get from starch sources. Starchy foods have a sustenance quality about them, because they take a while for the body to digest and, therefore, keep us full longer. They are the best survival foods from a nutritional efficiency standpoint. Therefore, we need to allocate our acreage accordingly when designing our mini-farm. The largest sections of land should be dedicated to complex carbohydrate production, such as potato and grain farming.

However, we do require a variety of food types in order to stay healthy, and we desperately need those small doses of vitamins. You will want some citrus trees on

your land, even if your climate requires you to keep them in indoor pots. Apple trees produce well in cooler climates and are a good source of vitamin C. Bountiful crops of berries and grapes can be grown seasonally just about anywhere, and preserved for the off-season.

Fats are necessary in the human diet as well, and it is important to get some of them from healthy sources rather than purely from meat. Oils are a great way to accomplish that, which can be produced from olives, nuts, soybeans, and some dairy products, such as homemade goat milk butter. Be sure to allocate at least some space for growing nuts and olives.

Pollination is an important part of gardening. You don't need to keep bees, but it is a good idea to attract them. Grow some flowers in the summer and hang a few pieces of semi-rotting wood around. Drill a few holes in the rotting wood. This will entice carpenter bees in small numbers to take up residence.

Soil depletion must be addressed, or the quality of your crops will steadily decline. You can accomplish self-sustained soil replenishing by mulching. Set up compost piles around your land and put all organic garbage in them. Work the compost into your vegetable and grain fields during the off-season. Harvest the manure from your pets and livestock and work it into the soil.

Keeping livestock is desirable, but takes a lot of space. The exception is chickens, and to a lesser degree rabbits. You can have a nice little chicken coop that produces eggs, and another one which you use to reproduce chickens. Rabbits require a little more space (to raise them humanely), but may be worthwhile as an additional meat source. Goats require quite a bit of space, but are well worth it because they provide dairy products. If you are not going to use goats as a food source, one female goat in a smallish pen will produce enough dairy for an average size family. Keeping one male as well will ensure you have continued dairy production and future generations of goats.

In addition to being a potential source of oil, nut trees provide healthy protein. Nuts are a highly yield-efficient crop, so it's a no-brainer to have a few nut trees on your land. Pecan, chestnut, and walnut trees can take up to ten years to start producing, however. Other varieties of nuts typically start producing in 3-5 years. The time to plant your nut trees is now! Almonds are a great choice as the nuts easily convert to incredibly healthy almond butter, but almond trees will lose their entire crop with a late spring frost – so they are not a good choice in temperate climates, where walnuts are more practical. Please note you cannot grow nut trees from seeds; you need to visit a nursery and get grafted saplings.

Another weather-hardy nut tree is the Korean Pine. Pine nuts are delicious and nutritious, and you can make pesto sauce from them. Pine trees prefer colder climates and will not do as well in hot desert areas.

Some nuts grow on bushes instead of trees. These can be a good hedge to mark your property line with, especially hazelnuts which are cold-weather resistant. Peanuts are a strange bush-like plant with a high crop yield, and are easy to make oil and butter from – but they only grow in warmer climates.

In the following chapters, we will further discuss specific types of food crops best suited for off-grid homesteaders, their climate restrictions, and more details about cultivation. For now, I want you to picture your land and start to plot out where everything is going to be. The largest sections will be for grain farming and livestock keeping. Where are you going to put those chicken coops? You will need a small fruit orchard with apple or citrus trees, olive trees, and maybe a few walnut and cherry trees. Where are those going?

The perimeter of your land can be utilized as well, with hazelnut hedges and grapevines (which just love to grow along fences).

Finally, think about building a greenhouse or two and decide where to put them. Think big – well, tall anyway. A 16' high greenhouse will allow you to grow citrus trees in pots, even if your land gets a few frosts over the winter. Many other types of produce trees and plants will do better inside a greenhouse, whatever the season. Tomatoes and other garden vegetables love greenhouses as well, and greenhouses keep destructive pests away. The only real issue with keeping an off-grid greenhouse is sustainability, since the screening material is a manufactured item. Most homesteaders are willing to concede the stockpiling of at least some materials from pre-SHTF society, however. I would make a large role of greenhouse screening one of those items.

Fruit Trees Year Round

What types of fruit trees you can productively grow depends on your climate, acreage, and soil conditions. Fruits are seasonal, and thankfully different types of fruits ripen at different times of the year. That means you might be able to enjoy fresh fruit of some type or another year round, and reap the health benefits thereof. This is what you should strive for.

Below is a list of common backyard fruit trees sorted by climate and season.

Cold Climate Fall and Winter Fruit Trees

Apples

Tart Cherries

Pears

Persimmons

Cold Climate Spring and Summer Fruit Trees

European Plums

Reliance Peaches

Figs (Celest or Alma/Honey)

Warm Climate Fall and Winter Fruit Trees

Oranges, Tangerines, and Tangelos

Grapefruit and Pummelos

Lemons

Sweet Cherries

Figs

Persimmons

Warm Climate Spring and Summer Fruit Trees

Peaches and Apricots

Japanese Plums

Limes

Nectarines

Figs

The above is a rather comprehensive, practical list for backyard fruit tree growing in the northern hemisphere. We have not included tropical fruits such as bananas, mangoes, etc. because off-grid homesteading survival is mainly a concern in North America and parts of Northern Europe. Let's take closer look at these individual fruits now.

Apples and Pears: Apple and pear trees only produce well in cooler, northern climates, as they actually need cold winters as part of their lifecycle. You will need to plant at least two different cultivars (varieties) nearby each other, in order for the trees to cross-pollinate. Two full-size apple trees will be enough for a family of four to have abundant apples in season, plus plenty of jarred applesauce and apple cider year-round. Do not attempt to grow the trees from seeds; you will need good "non-spur" type grafted rootstocks from a local nursery (spur-types are okay for dwarf trees). Plant them in the spring in mulched soil where they will get plenty of sunlight, and fertilize once while they are young. Red Delicious, Golden Delicious, and Liberty are the most forgiving varieties to grow and require the least maintenance. Prune the adult trees regularly for best results. (Note: Four less popular varieties of apples ripen in summer: Stark Earliest, Viking Transparent, Redfree, and Pristine).

Cherries: Tart (or sour) cherries prefer the colder climates. Sweet cherries are a different species and like it warmer, but not hot-dry desert conditions. Tart cherry trees are self-fruitful, so need no cross-pollination. Sweet cherry trees do need cross-pollination, so you will need to plant two trees, one each from among the half-dozen different varieties available. Full-size cherry trees are difficult to grow and present a myriad of problems to backyard growers; therefore, dwarf-trees are recommended. Get grafted rootstocks from a local nursery. Dwarf grafted rootstocks are a relatively new thing, developed in Germany, so you may need to search for them. Plant them in well-drained soil where they will get all-day sun. Prune them in the summer. The biggest problem with growing cherries by far is birds, which will eat your entire crop if the trees are left unprotected. You will need to cover the trees with mesh netting, or grow them in a greenhouse.

Persimmons: A highly recommended fruit tree for homesteaders. Persimmons grow almost anywhere, are highly yield-efficient, produce fruit rich in nutrients, and require very little care. They can be grown from seeds or grafted rootstocks. No pruning or fertilizer necessary. They will simply grow and produce lots of nutritious fruit. The only thing you need to know is to plant both a male and female tree if growing American persimmons; if you grow Asian persimmons you can get away with just one tree, as they are self-fruiting.

Plums: Another wonderfully low-maintenance fruit tree that is nearly impossible to screw up and produces bountiful harvests of delicious, vitamin-rich crops. European plums require a cold climate, while Japanese plums need a warmer climate – but not as warm as the dry desert areas. Both types of plum trees have several self-pollinating varieties available; otherwise you will need to plant at least two trees (preferably different cultivars). Be aware that Japanese and European plums will not cross-pollinate. These trees do not get huge, so there is no need for dwarfs. They can be grown from seedlings or grafted rootstocks. Prune the dead branches off and keep the center from becoming too crowded. Other than that, these babies grow

themselves. Plums make good preserves, and can be dried into prunes. Having a plum tree or two is highly recommended.

Peaches, Apricots, and Nectarines: Easy to grow, but require considerable care. Nectarines can be picked early and ripened off the tree, but peaches and apricots must be tree-ripened and, therefore, produce a tremendous crop all at once. Fortunately, the fruit is excellent for canning and making preserves. These trees can be grown by simply planting a pit from one of the fruits. Most varieties are self-pollinating. *Reliance* peaches are hardy and will grow in colder climates. Fertilize and prune these trees annually. The pruning should keep the center of the tree open. Branches will become heavy with fruit and lean to the ground, often breaking if they are not supported by being tied up with rope. Some varieties require cold spells in the winter, but there are varieties which do well in southern climates – everywhere but the hottest, dry desert areas.

Figs: A wonderful tree for homesteaders which will grow in almost any climate. In colder climates, they will produce one crop per year - but in warmer climates, fig trees actually yield fruit twice a year. The fruit makes good preserves and can also be dried. Figs are a delicious, nutritious food whether they are dried or eaten fresh off the tree. They have been an important part of the human diet in many cultures for thousands of years. Fig trees require no care and are impossible to screw up. Most varieties are self-pollinating. Just get a grafted rootstock from a local nursery and plant it where it will get sun, and where you would like to have a nice shade tree. (Note: Avoid California fig trees because they can only be pollinated by a wasp that lives in California, and the quality of fruit they produce is inferior to other varieties.)

Citrus Trees: All citrus trees require warm climates and will lose their entire crop if a significant frost occurs. Dwarf trees can be grown in greenhouses in cooler climates, especially if attention is given to protect them from the frosts. Dwarf trees can also be grown in pots indoors by a sunny window, and will still produce some fruit that way. Limes ripen in summer, but all other citrus trees produce winter crops. The fruit will typically stay ripe on the tree and remain good for months, however. The juice from citrus fruits has been an important staple in the modern human diet, being a rich source of vitamin C. Citrus trees are self-pollinating. Choose healthy, vigorous young trees from the nursery and plant them in soil with good drainage where they will receive a lot of sunlight. You don't need to prune or fertilize them; if you have the right climate, they will grow and produce (and if you have the right climate you should certainly grow some citrus trees). Be aware that full-size trees can become quite large, and even dwarf trees can produce impressive yields.

There are additional fruit trees that may be grown in specific warm climate areas, but they are not really efficient choices for homesteaders. Examples would include pomegranate, kumquat, and avocado trees. In the next chapter, we will look at fruit that grows on vines.

Vine Fruits

There are three types of fruits which grow on vines: grapes, berries, and melons. Grapes and berries are perennials, meaning the same vines will die and grow back every year, producing many crops before needing to be replaced. Melons are annuals, so the entire crop dies after one harvest and new plants need to be grown every year. Berries and melons can be grown from seeds (and thus the seeds from last year's crops can be used to grow next year's plants, a self-sufficiency dream come true). Grapes need to be grown from grafted rootstock. Grapes and berries are very efficient crops land-usage wise. Melons are not.

Grapes: There are two basic types of grapes you can grow, wine grapes and table grapes. Why not grow both? There are grape varieties that will grow in almost any climate, but they tend to do best in areas that have warm summers and cool winters with at least 150 frost-free days per year. Dry desert areas are well-suited for growing table grapes. Fortunately, decent wine can be made from table grapes, and likewise wine grapes typically make for delicious eating. Wine grapes are smaller, however, and some varieties have thicker skins and large seeds, which can be an eating deterrent. If you want to grow a dual-purpose grape which makes great wine and is pleasant for eating, consider Foch or Pinot Noir grapes.

Concord is the most popular table grape because the fruit is large, sweet, and juicy. Wine can be made from concord grapes, but it is not usually considered a high-quality wine. Concord grapes make wonderful preserves. They produce well in cold climates as well as in warm, dry areas.

Your local nursery probably sells vine saplings for table grapes that are good for your area. They may also sell wine grape saplings. Otherwise, you can buy them online (or perhaps search out a local winemaking supply shop which sells vine saplings). Plant them in the spring and fertilize the vines once. Grapes are self-pollinating. It will take 2-3 years before your vines begin producing good, usable crops – so plant them now. Your grapevines will probably live longer than you.

Grapevines must be diligently pruned, or they will get out of control and give poor yields. After the harvest, prune back most of the old branches so new ones will be forced to grow. In the spring, prune back all but the best looking new branches. For the best quality grapes, you want no more than 8-10 clusters per vine. So, plant plenty of vines if you want good grape production.

Grapes need a trellis or support system of some kind upon which to grow. A perimeter fence makes a great grapevine support. You can have the sunny side of it covered with grapevines during the growing season, and reap bountiful harvests without using any of your land. Talk about an efficient crop! Grapes (in all forms) are an extremely nutritious food source.

Berries: Among the many berry varieties, the most popular with homesteaders are: blackberries, raspberries, blueberries, and strawberries. Berries will grow almost anywhere. Raspberries and blackberries thrive in dryer areas with less rainfall, while

blueberries and strawberries like a lot of moisture. All berries make excellent preserves.

Strawberries are the least space-efficient berry crop. The plants stay low to the earth, so require a lot of land to produce a decent yield. In cooler climates, strawberries are perennial and the same plants will yield crops for years to come. When they finally die, new plants can be grown from the fruit/seeds of the last crop. (This is assuming you do NOT start with a cultivated hybrid variety, which is not recommended for homesteaders. Grow your strawberry crop from seeds to begin with and avoid this issue.) In warmer climates, strawberries die off after the harvest and new plants must be grown from seeds every year. Strawberries are among the most delicious fruit on earth and are high in vitamin C.

Blackberry, raspberry, and blueberry plants form into space-efficient bushes and produce impressive yields. Blueberries prefer sandy, well-drained soil but raspberries and blackberries will grow in almost any soil type. All berry plants require sunny locations and are self-pollinating. Because these berry bushes are low-maintenance, I would place them on the outskirts of my property, over by the grapevine-covered fences or the hazelnut hedges. The biggest problem you will have is with birds, but they usually leave you the lion's share of the berry crop. You can always cover the berry bushes with mesh netting.

Melons: Honeydew, muskmelons, cantaloupe, and watermelons are vitamin-rich fruits which grow on vines along the ground. They require a lot of ground space and plenty of attention from the grower. Melons can be grown from the seeds of other melons. They require 2-3 months of heat, so they are not a good crop for northern regions. Melons will self-pollinate from bees, but need those bees to visit their flowers. Warm soil, frequent fertilizing, and constant weeding and watering will bring in a good melon crop.

Personally, I would not grow melons or strawberries on my off-grid homestead unless I had large plot of land and a big family who were all enthusiastic about farming. Otherwise, those crops are too much work and require too much land usage for too little return. That land is better slated for raising livestock and/or complex carbohydrate production (assuming I already have fruit trees, berry bushes, and grape vines going).

Sustainable Tomato Gardening

Tomatoes are an important staple in the modern diet. They are rich in vitamins C and A. Tomatoes are a hearty, filling food and an indispensable ingredient for home chefs. Tomatoes are perhaps the world's best canning food, preserving perfectly for many years via a simple hot water bath canning method. A homesteader simply must grow tomatoes.

Tomatoes can be grown indoors or out, and do particularly well inside greenhouses. There are many varieties of tomatoes to choose from. You are going to want big ones, and lots of them. Forget about cherry tomatoes, plum tomatoes, and the like – those were luxuries of the city-slicking days. Roma tomatoes are the smallest variety you should consider.

There are volumes of detailed books written on tomato gardening which will have you testing the pH of your soil, timing your mulches, and choosing an obscure variety to grow which most closely matches your exact climate and location. Seriously? The truth is, tomatoes are very easy to grow and almost impossible to mess up. Buy some seedlings from a nursery, mix some compost in the soil, plant them after the last frost in a spot that gets 5+ hours of sun every day, set a cage around each plant, water them frequently, and voila – a few months' later, you will have lots of homegrown tomatoes. Most tomato plants will continue to yield fruit well into the late fall and early winter.

Tomatoes are technically perennials, but practically are grown as annuals. In most areas, it is not worth attempting to revive last year's plant for another round. Pull them up and save the seeds from some of the fruit to replant.

To start new plants from seeds, wrap the seeds in a wet cloth and place them in a sunny windowsill. Keep the cloth moist. The seeds will sprout roots. After a few days, plant the sprouting seeds about one-third of an inch deep in soil in a small container of some sort in the same windowsill. Keep the soil moist but not soaked, and keep the window to the room closed. Tomato seeds germinate best at 80° Fahrenheit. In a few more days, the sprouted plants should be popping up. Let them continue to grow in the windowsill until they become healthy little seedlings – but do not let them become too tall and skinny before transplanting them, as that may weaken their structure. If that window gets a good 5+ hours of sunlight, the plants can be moved into deep pots and your crop can be grown right there if you like, as long as you manually pollinate them. Otherwise, move them to a full length window in the house, plant them in the yard, or put them in the greenhouse. Tomatoes can also be grown inside a closet under fluorescent lights.

Indoor or greenhouse-grown tomatoes must be manually pollinated. The tomato plant pollinates itself, but requires manipulation of the flower in order to do so. Outdoors, this naturally occurs from bees and other insects. Indoors, you need to get the pollen flowing yourself. First, the flowers must appear on the plants. To encourage this, feed the young plants regularly with a balanced N-P-K fertilizer. After the flowers appear, ease off on the fertilizer. If you do continue to fertilize, use a lower-nitrogen balance.

To pollinate the plant, gently massage the stem of each flower on the plant every day for about a week during the hottest part of the day. Vibration is what releases the pollen in the flower, as in the vibration from the wings of a hovering bee. I have heard of people taking an electric toothbrush to the stem of the flower in order to accomplish this. Some people keep a few bees inside their greenhouse to do the job for them.

Indoor tomatoes should be grown in 3-gallon containers. Work your way up to them with a series of transplants, and then add a wire cage for support to the final container. If growing them under fluorescent lights, keep the lights about a foot above the top of the plants and give them 18 hours a day of light. Ultimately, indoor-grown tomatoes will give a smaller yield than plants grown outdoors or in a greenhouse.

Outdoor tomato plants can be fertilized once when young and then left alone, assuming the soil started with a good mulching of compost. You may need to train some of the branches around the wire cage.

To harvest tomato seeds, cut one of the late-season tomatoes in half and squeeze the innards of the fruit into a cup or glass, until the cup is about half-full of pulp. Set the cup in a closet or on a garage shelf where the resulting stench will not bother you, and wait about a week for mold to form on top of the pulp. Scrape the mold off with a spoon, and then fill the rest of the cup with water. The good seeds will now sink to the bottom of the cup. Pour out the liquid and pulp, including the bad seeds on the top. Put the good seeds in a strainer to rinse them, and then set them on a plate for a few days until they are dry. Store the dry seeds in a cool, dry, dark place until next spring when it is time to germinate them in your windowsill.

Potato Mini-Farming

Potatoes are one of the most important food staples in western society. They are by far the most grower-friendly complex carbohydrate. As an off-grid homesteader, they are your best bet as a primary starch source. You may not always have grains, flour, and bread available, but bountiful spring potato crops can keep you supplied year-round if you have a cold storage room (a cellar will do) or a pressure canner.

So far in this book, we have planted fruit and nut trees, have plenty of berries and grapes growing in out-of-the-way places, and have allocated a little space for tomato gardening. The majority of your land is still wide open and available. We now want to section off a strip of it for potato farming. Potatoes grow during the cooler months, so the same plot of ground can be used to grow a late warm-season crop such as amaranth or pumpkins. In fact, rotating these crops in such a manner properly conditions the soil for the next potato crop.

Potatoes are a highly efficient ground crop. They accomplish this by the using the depth of the soil. One potato plant will normally yield 15-20 pounds of spuds. That means a 100' x 4' strip of ground (one row) will produce over 700 pounds of potatoes. That's more than enough to feed a family of four for a year, assuming you can keep them preserved.

Potatoes grow from other potatoes. For outdoor growing, they are typically cut up into chunks with at least two eyes per chunk. These chunks are referred to as *seed potatoes*. Depending on the variety, one potato will yield 3-6 seed potatoes. The seed potato chunks can be simply planted in the ground, covered, and watered.

Potatoes like lots of compost, and, in fact, can be grown indoors in pure compost if desired. Outdoors, a good mix is two parts soil to one part compost. No other fertilization is usually necessary (use a low nitrogen blend if you do fertilize further).

In order to grow potatoes efficiently, one must keep up with the growth of the shoots and continue to bury them. This is how the plant uses the soil depth to arrive at bountiful yields. When the shoots reach 10-12 inches in height, bury the shoots halfway up in the same soil mixture. Repeat for the life of the plant. Potatoes are ready to harvest when the above-ground plant begins to die. At that point, they must be dug out of the ground using a small pitchfork or hand gardening tools.

Potatoes prefer cool ground, but don't like a lot of water. The ground should be watered lightly to moisten it without soaking, and needs to have good drainage. In many areas, the spring rains accomplish this perfectly. In warm climates, two potato crops can be grown back-to-back in the fall through winter months. In colder climates, plant them in early spring and harvest them in late spring or early summer.

To grow a row of potatoes, you will need a four foot wide section of the proper soil mix in order to keep building up the mound in the middle as the plants shoot up. So, by the time the harvest arrives, you will have a single big mound of plants surrounded by two trenches. This method is known as the *hilled rows* method. The individual potato plants should be planted 2-3 feet apart from each other in the row.

Another method is to grow them in a square enclosure of some type, usually wooden and about 5' x 5' and 1-2' high in dimensions. Pile up the additional soil inside the square as the plants shoot up. This method is known as using a *raised bed* and is good for areas that have poor drainage in the ground soil. You need to have a lot of soil mixed and ready to add as you go. Backyard gardeners report impressive yields from raised beds.

Potatoes do not require much sunlight and can be grown in the shade underneath fig or olive trees. In fact, they can be grown in containers inside a shed or a garage and be kept completely in the dark. For this method, let some potatoes start to rot and grow shoots. Cut them in half and place the shoots facing upward in a thin layer of compost (or soil/compost mix) in a 5-gallon bucket or container. Have a few inches of rocks at the bottom of the bucket for drainage. Cover the shoots with soil and water lightly. As the shoots grow up, keep covering them further with soil and compost until the bucket is full and the shoots begin to die. Each bucket should yield 12-15 pounds of potatoes within 8-10 weeks' time.

Harvested potatoes will need some type of cold storage to keep them from rotting and sprouting. A cool basement or wine cellar will work, or maybe a shed in the shade. To keep some for the next crop, don't clean the dirt off of them, as they will preserve better that way, and store in a cool, dry, dark place. Potatoes designated for eating can be frozen of course, but can only be safely preserved in jars by using a pressure canner. Do not attempt to can potatoes without a pressure canner, as there are serious health risks (including botulism) in doing so.

One solution for preserving the crop, if you don't have adequate cold storage, is continuously growing some year-round indoors in buckets as described above. That way, when it's time to plant outdoor crop in spring, you will have plenty of fresh potatoes to cut into seed potatoes.

Outdoor Vegetables: Spring and Summer

A sizable portion of your remaining landscape (and greenhouse room) should be committed to vegetable gardening. Vegetables are important for nutrition and balance in our diets. Most vegetable gardening is done during spring and summer. We mostly want to concentrate on yield-efficient crops that provide a lot of nutrients, which are good pickling or pressure-canning prospects so we can consume them year-round. There are two exceptions to this guideline, so let's start with those.

Pumpkins: A warm-weather crop that has a long growing season and requires a lot of space to produce quite an inefficient yield. They are worth considering for homesteaders who have the available land (and a reasonably long summer) because the seeds are an excellent source of protein and healthy fat, while the flesh is a particularly nutritious complex carbohydrate. Also, they are prolific and quite easy to grow. They do need warm weather and lots of watering, however. Plant them in a sunny patch of ground in May or June and harvest them between early September and late November. Give them room to grow out. Because they are a relatively low maintenance crop, feel free to grow them off in a far corner of your land. You might consider drilling a shallow groundwater well there for irrigation purposes (see my book *Harvesting H2o* for instructions). Save some of the seeds for next year's crop and store them in a cool, dry, dark place.

Corn: Each stalk of corn produces only 2-4 ears of corn after a 3-4 month growing season. This is not my idea of efficiency, but corn is a grain and thus a source of starch and the much-needed complex carbohydrate. Corn preserves extremely well through pressure-canning, freezing, or better yet by drying and grinding into cornmeal. Still, I would consider corn a luxury and only grow it if I had the extra plot of land and the time and inclination to tend to it. Corn needs much sunlight, lots of watering, good soil drainage, and nitrogen-rich soil. Fertilize corn crops several times with high nitrogen fertilizer. Plant the seeds a few inches from each other in late springtime, and thin out the weaker stalks when the plants are about 8 inches tall. Grow corn in a thick patch rather than in rows. Harvest it in late summer when the kernels start becoming tender. Mulch the leftover stalks, or feed them to your animals. Allow some of the ears of corn to dry on the dying corn stalks and use those dried-up kernels for planting next year's crops.

Green Beans: We need green veggies to stay healthy. Green beans are easy to grow and are very space-efficient with reasonably high yields. They are a vine, so they grow up a trellis. The easiest way to provide that is with twine tied between wooden stakes. You can also grow them along your fence line, especially a metal chain-link fence, as long as it is in the open. Green beans need full sun, warm soil, and frequent watering. Plant them in mid-to-late spring, after there is any danger of frost. Their growing season is rather short; expect to harvest the crop about two months after planting. So, you can do at least two or three full crops per season and then pickle or pressure-can the excess. Each crop will produce several harvests, so pick them early and often – the more you pick, the more you will get. Green beans are prolific and difficult to screw up. After tomatoes, they are the second most popular home garden vegetable. In

order to create seeds for the next crop, you will need to let some of the last of the beans dry up on the dead vines after the final harvest, and then retrieve the seeds from those. Beans picked when ripe will have underdeveloped seeds and will not sprout.

Summer Squash: Zucchini and Yellow Crookneck squash are highly efficient, prolific summer vegetables that are famous for their high yields and low maintenance – perfect for the off-grid homesteader. Just a few plants will provide you with half a dozen new squash picked every day during the peak season. The growing season is short as well, with most plants producing steadily within 6 weeks of planting. Squash do need lots of sun and water, and well-draining soil. Give them a lot of compost to start and you'll be fine. You also need to have some bees around, as that is the only way squash plants pollinate and produce fruit. I recommend growing the plants in stages, planting at least couple of new plants every couple of weeks all throughout the mid-spring to early summer. You will get a lot of vegetables this way! Excess squash can only be preserved by freezing or with a pressure canner, however. No big deal if you don't preserve them, because if you plant in stages you will have them for nearly half the year, and then there is winter squash season. For seed harvesting, let a few squash grow to full maturity on the vine, and then set them out and let them begin to rot. Flesh out the seeds from the mature, rotting squash, rinse them off in a strainer, and store in a cool, dry, dark place until next year's plant.

Onions, Carrots, and Beets: Not the most efficient crops, but necessary for both nutrition and cooking. Without onions, all your off-grid dinners will be bland. Beets are the most practical way for most homesteaders to produce sugar (they must be the sugar-beet variety, however). Carrots are highly nutritious, very useful in cooking, and are a decent source of protein. You should grow all three of these tubers. They are grown in the same manner: Till the ground well and mix in lots of compost, grow them in rows in full sunshine, sprinkle the seeds in a thick blanket so the crops grow right up against each other, plant in early spring (or right after the last frost), water often, and harvest in the fall. You can harvest some of your onions young as scallions (or green onions). These plants are all easy to grow, but they must be grown for two seasons in order to harvest seeds! So, after season one, you must store a supply of harvested bulbs in a cool, dry place for replanting in the spring. Just put them right back in the ground for another round. Early in the second autumn, they will flower and produce seeds within the flowers, which can be harvested for next year's vegetable crop. So, these crops must be grown in stages and you need to have separate patches of first-year crops for eating and second-year crops for seeds.

Garlic: Necessary for cooking and packs considerable health benefits. Garlic is especially good for the immune system. It is grown in much the same way onions are, except garlic is planted in the fall and left in the ground over the winter. In the springtime, they will shoot up leaves and be ready to harvest by mid to late spring. Garlic is ready to harvest when the outside leaves turn brown (the inside leaves will still be green). To replant, simply save some of the cloves and replant them. Each clove will grow into a full bulb next season. Garlic can also be grown from seeds, but it is more complicated, so why bother?

Cucumbers: An awesome vegetable for homesteaders because of space efficiency, nutritional value (vitamins A, C, and K plus potassium), ease of growth, and short

growing season. The only drawback is preservation, as the only way to keep them is by pickling, which reduces their nutrients some. There are two types, the vining type and the bush type. You want the vining type. Mulch the soil with lots of compost before planting. Plant in the heat of summer in full sun and keep the soil soaked – you cannot over-water cucumbers! Give them a wire cage, trellis, or wire fence of some type to climb. A wire fence along the perimeter of your land is perfect, but you must keep them watered. Harvest when they are a full, rich-green color. Let a few of them spoil on the vine, until they turn yellow or orange, for seed harvesting. Harvest the seeds in the same method given in the tomato chapter (allowing them to ferment for a week or so in their own pulp first). Choose one variety of cucumber only and grow that one, as cross pollination between species can mess them up.

Peppers: Small chili-peppers are very efficient crops. Larger bell peppers less so, but you may find them indispensable for cooking. Pepper plants are semi-perennial and will produce several years' worth of crops before dying in many areas. They are small bush plants. Peppers like warm weather and lots of watering – beyond that, it's pretty much plant them and watch them grow. Make sure you are beyond the last frost of the season, however. Pepper plants do especially well in pots and in greenhouses. Seeds are best harvested by letting a few peppers dry up on the dead bush and retrieving those seeds for next season. If you are not used to handling peppers, be careful with them! Try not to touch the inner parts of the hot varieties with your bare hands – and if you do, keep that hand away from your face.

Eggplant: A highly nutritious and versatile cooking vegetable, if not the most space-efficient crop. Eggplant dinners will fill you up. These plants prefer very warm soil, so growing them in raised beds is recommended (see the potato chapter). The plants grow tall and are angular, so you need to have them at least two feet apart from each other. Each plant should yield at least several large eggplants. Plant them in mid-spring and you should be harvesting them in mid-summer to mid-fall. Harvest when they turn very dark and are still firm. Eggplant requires well-drained soil and frequent watering, so put lots of compost in the bottom of the raised beds. Eggplants need full sun. Harvest the seeds in the same manner as squash seeds, above.

There are many other outside spring and summer vegetables you can grow, of course, but the above should be priorities for an off-grid homesteader living in the northern hemisphere.

Outdoor Vegetables: Fall and Winter

It should be obvious that you cannot grow and harvest any kind of vegetable underneath a pack of snow. If your land is in an area that looks like the North Pole for 4-5 months out of the year, you will have to make a good attempt at the fall and winter vegetables in the late spring or early fall. You can always start the plants indoors and then move them out after a few weeks, preferably into a heated greenhouse. The vegetables in this section are cool weather crops. Those of you living in warmer climates can re-compost the same plot of land used for summer vegetables and grow these wonderful plants the remainder of the year.

Green Leaf Vegetables: The stuff you use for salad greens are all cool-weather crops. Some of the better-known examples include lettuce, cabbage, spinach, kale, and collards. These plants can all stand a few frosts, and, in fact, seem to do better with them. Kale, cabbage, and collards are especially hardy. You need well-drained soil that is rich in compost to grow leafy vegetables. While these plants like to see at least four hours a day of sun, they will grow in shade as well, and actually will do best if shaded from the sun during the hottest part of the day. Several applications of nitrogen-rich fertilizer (such as fish emulsion) are recommended during the growing season. Plant the seeds about a foot apart from each other in rows. Lettuce can actually handle being buried under snow a few times, especially if you put some kind of cover over the row before the storms. Water these plants often if there is a dry spell. Leaf vegetables are great candidates for your greenhouse during the winter months and will do well in pots or containers, as long as you keep some bees in the greenhouse for pollination in order to produce more seeds. Let a few plants “go to seed” in order to harvest seeds for next season; first flowers will form and then seed pods. Let the seed pods turn brown and then harvest the seeds.

Broccoli and Cauliflower: Two great, nutritious winter crops which can be preserved by pressure-canning or freezing. Make sure you grow the “heading” variety of broccoli. Cauliflower is very sensitive to heat spells, so is best grown in northern climates or during the dead of winter in the south. Both plants like lots of compost and lots of sun. These plants have shallow root systems which are susceptible to weeds, so weed them prudently. Space the plants about a foot apart from each other. Expect a 2-month growing season most years and harvest the entire head of the plant when you have 6-8” of stalk below the head. If yellow flowers start growing, you waited too long. Broccoli is more sensitive to frosts than cauliflower, so it should be grown before/after the coldest time of year. Both plants will do well inside a greenhouse which affords lots of sunshine, but you need to have some bees in there in order to reproduce more seed. Let a half-dozen of each plant go to seed in the same manner as the green leafy vegetables above, and harvest the seeds the same way.

Winter Squash: These wonderful species include butternut, buttercup, spaghetti, hubbard, and acorn, plus a few others. They are highly nutritious vegetables which have a long unpreserved shelf-life, during which they retain nearly 100% of their nutritional value. Unfortunately, they also have a long growing season. Winter squash is typically planted in mid-summer and harvested in early winter, before the freeze,

and before too many frosts hit. In southern regions, they can be grown and harvested in the dead of winter. They grow on vines and do best if each vine is grown on its own little hill, at least 5 feet away from the next vine. It is well worth attempting this crop every season, no matter where you live. Use the same area from your already-harvested summer squash, after re-composting it. Winter squash are ready to harvest when the color of their skin begins to dull. Harvest seeds in the same manner as summer squash.

Celery: This is a much better indoor vegetable for homesteaders in my opinion, but can be grown outside – or better yet, in a greenhouse – in the fall as a perennial in southern regions, and an annual in northern regions. If grown as an annual in cold climates, it will need to be planted in mid-summer and harvested in mid-fall, with the seeds harvested in late fall. Harvest the seeds in the same way as broccoli and cauliflower, above. If grown as a perennial in areas which do not get frozen, or in an environmentally-protected greenhouse, all you have to do is harvest the stalks above the soil line by cutting them, and the plant will just keep growing more stalks.

Brussels Sprouts: A highly nutritious green vegetable that simply loves the wintertime. Plant in late-summer and expect a long growing season, with a harvest in mid-to-late winter. No worries; these plants can handle everything a severe winter can throw at them. They grow on stalks and will produce maybe 40-50 sprouts per stalk. Plant each stalk about two feet from each other. Hit them with some nitrogen-rich fertilizer or fish emulsion when the stalks are about a foot tall, but other than that don't concern yourself too much over the soil. Make sure they get plenty of water. Brussels sprouts can be frozen or pressure-canned and will preserve well. These plants are pollinated by bees. Harvest seeds in the same manner as green leafy vegetables, above.

....and that's about it for fall/winter vegetables, but that is enough to keep you busy and get you through. These crops are some of my favorite side dishes.

Rhubarb warning: Please do not grow rhubarb if you keep animals such as goats, dogs, pigs, and cats. Rhubarb leaves are poisonous and animals (especially goats) will eat them and die. Growing rhubarb is trendy because the stalks are a source of vitamin B12 complex, which can be difficult to get from other produce sources, and vegan diets are currently a fad. However, I wouldn't grow it. Considering the poisonous leaves, it is an inefficient crop. You can get a good range of B vitamins from a mixed and balanced diet that includes eggs, fish, goat milk products, nuts, citrus fruits, grains, game meat, and leafy salad greens. If you do decide to grow rhubarb, bear in mind it is a cool weather crop and a true perennial – so the same plants will produce winter after winter.

Indoor Vegetables

Fortunately, many garden vegetables can be grown indoors, as long as you have a sunny, south facing window. Alternatively, you can dedicate a room as a garden and grow under fluorescent lights (see the tomato chapter). Some vegetables require deeper containers than others. You will need to have a good soil mix to start with and preferably feed the plants with a water-soluble fertilizer of some type several times during their growth cycle. The important thing about the starting soil is to keep it clay-free. Mix good topsoil with compost, and maybe add a little horse or rabbit manure to start with, and you should be fine. Grow indoor vegetables according to their outdoor growing seasons. Make sure you do not use containers that once held toxic chemicals!

Indoor vegetables that do well in shallower pots include:

Celery

Round carrot varieties

Radishes

Lettuce

Herbs (see next chapter)

Mushrooms (see instructions below)

Indoor vegetables which require deeper pots include:

Tomatoes

Peppers

Eggplant

Potatoes

Dwarf green beans

Dwarf peas

Longer carrot varieties

Indoor vegetables need as much sunlight as you can arrange for them, and frequent watering. Grow them according to the instructions given for their outdoor counterparts. Indoor dwarf peas can be grown in the same manner as outdoor green beans (seed is harvested the same way). Harvest radish seeds by simply letting some of them go to seed, that is, leave them in the container until they flower and grow seed pods, then harvest the seeds for re-use. Indoor potatoes will need to have soil added and be mounded up as they grow, in the same manner as growing outdoor potatoes. For that reason, consider growing the smaller red “new potato” varieties indoors.

Germination of the seeds for all your vegetable crops – indoor or out – should be done indoors. I like to wrap them in a moist paper towel or napkin until they sprout, but in a society free of paper products you can simply use a clump of mud and keep it wet. When the seeds sprout, put them in a small container in a windowsill (or somewhere sunny) until the plants become healthy seedlings and then transplant to their growing destination. In areas where there is a late spring frost, all vegetables should be started indoors and kept there until the last frost before being transplanted outdoors, even vines such as squash and cucumber.

Growing Mushrooms: Indoor mushroom farming is easy, but harvesting “seeds” for the next crop is a bit tricky. It is a worthwhile endeavor, however, because this crop is grown in the dark and delivers considerable nutritional value, including potassium, vitamin B6, and some protein. I would go with a common white variety such as button mushrooms. The temperature for the entire growing season must be kept between 40 and 60° Fahrenheit, so most people grow them in a cellar, shed, or garage during the winter. An unused shelf in a cupboard will also work. You need a wide growing container, or a series of smaller ones, with only a couple inches of well-composted soil. Mushrooms are grown from spores; spread the spores thick and generously in your soil – or start the first crop from a pre-spawned soil mix. Water them lightly every day and spray them with a mister as well. The crop grows fast and you can begin harvesting after 4-6 weeks. Mushrooms are incredibly prolific and will continue to produce for 5-6 months. Harvest only the mushrooms whose cap has spilt away from the stem, by cutting them off at the base right above the soil line.

The spores of the mushrooms can be harvested from the underside of the caps after separating the caps from the stalk. They are too small to see with the naked eye, but you can see clumps of hundreds of them which will fall from the mushroom cap. Mushroom spores will contaminate immediately upon contact with wild yeast and bacteria. Therefore, you must harvest them to a sanitized surface. One way of doing this is by using a small piece of hard plastic or a laminated card. Sanitize it with iodine, alcohol, or a diluted bleach solution and let it dry. Remove a mature mushroom cap from its stalk and set on the sanitized piece of plastic. Tap the top of the cap a few times in several places. Put a cup or glass over it for protection and come back in 12-24 hours. Remove the cup and the mushroom cap. There will be piles of spores on the plastic, numbering in the thousands. Immediately and carefully place the card with the spores into a sealed, sanitized storage unit such as a zip lock plastic baggie. Store in a cool, dry, dark place until next year’s planting. You will need to harvest the spores from at least a dozen large caps to grow next year’s crop.

The Herb Garden

Herbs are a necessity for cooking and deliver considerable health benefits, including immune system support. They can be grown indoors or out, and do not take up much space. They are a natural for growing in containers or in a greenhouse. Most herbs are vivacious and will grow like weeds once they are planted, as long as they get enough sunlight and water. This includes windowsills. Soil for herb gardening should be a mix of about 20% compost and the rest just dirt from the ground (a little clay in the mix is fine). Mix in a little animal manure before planting.

Herbs can be grown indoors or out. My wife and I grow a nice little crop of herbs using fluorescent lights in a device known as an *Aerogarden*, but, of course, that is a city-clicker novelty and not a long-term off-grid solution. You are probably going to want a larger crop, anyway. I recommend growing a few indoors in a sunny windowsill, and the majority in a greenhouse or outdoors in the vegetable garden. The nice thing about herbs is you can grow a large supply of them in a relatively small space.

The following herbs will flourish in shallow containers in a sunny windowsill: dill, parsley, cilantro, thyme, chives, mint, marjoram, oregano, and basil. Be aware that herbs grown indoors will not reproduce seed. That's why you should grow most of them outdoors, or in a greenhouse where a few bees are kept. Every season you can plant a few of them in your indoor windowsill garden for easy access when cooking. Generally speaking, the smaller the seeds the shallower you should plant them.

Parsley and caraway plants are *biennials*, meaning their growth cycle is exactly two years, producing seed only at the conclusion of the second year. They will die off in the winter after their first year and grow back the following spring. In the fall of the second year, they will flower and produce seed pods. You will need to keep track of which of these crops are first-year and which are second-year, perhaps by using different patches of ground.

Rosemary is a bush. It grows wild in many places, and in the city it is commonly used as a landscaping shrub. Plant one rosemary bush and you will forever be supplied with an abundant source of this delicious meat-rub herb, year-round.

Bay is an evergreen tree. One or two bay leaves adds a lot of flavor to any soup or grain dish. If you have the available land, plant one bay tree and you will forever have enough bay leaves for you and all your neighbors, year-round.

Peppercorns grow on small plants in tropical climates. Pepper is a staple for cooking, however, so it may be worthwhile to attempt to grow them indoors if you have the room and the wherewithal (if not, you will just have to settle on using your home grown peppers for that kind of flavoring). Peppercorn plants are known as *pipers* and need a lot of sun and humidity, and constant watering. In all practicality, you will probably need a room with a large sunny window to dedicate to this project. The plants are vines and need a trellis to climb. Any frost will permanently kill the plants, and they will temporarily stop growing at temperatures under 65° Fahrenheit. Most people who grow peppercorns indoors grow them under bright, warm lights that are left on 18 hours per day.

The following herbs are perennials: mint, chives, fennel, marjoram, tarragon, thyme, and winter savory. Plant these once and you will always have them available fresh from late spring through the fall. If I had to pick one just I couldn't live without, it would be thyme.

All herbs, of course, can be preserved and stored simply by drying them and keeping them in any type of container. The best flavor in herbs occurs late in the season just before they begin to flower, so this is the time to harvest them for storage. Wash them in cold running water, then hang them upside down or set them on absorbent towels for a few days. Do not move them into containers until they are thoroughly dry! They should crumble easily. I like to dry them in paper bags and just store them that way. If you seal herbs in a container before they are completely dry, they will spoil.

Seed harvesting is a little tricky. There will be a short window of opportunity, and if you miss it, the seeds will drop off into the ground. The plant will first flower and then the flowers will die and reveal the seed pods. You have about a week to harvest those seed pods after they appear. Set the pods down for a day and then shake them over a dry surface (paper or cardboard is great; you could also use thin sheets of dry tree bark). The seeds will simply spill out of the pods. Seeds take longer to dry than the herb leaves; let them sit out and dry for 10 days or so before moving them into storage containers. The seeds will be good for replanting. Alternatively, you could just put the seed pods in a paper bag and when you have collected enough of them, shake the bag, then just put the bag away for storage.

Grow Your Own Grain

Without grain, you have no flour and, therefore, no way to make bread or other baked goods. While corn can be made into flour, it is an inefficient crop requiring a large cornfield and many hours of labor in order to produce corn flour. Wheat and barley are the most popular farming grains, but they have husks (or hulls) which are arduous to remove in non-commercial production. Fortunately, alternative grains with no husks offer homesteaders a much more efficient process for producing cereal grains and flour.

Oats: A quarter-acre oat field will yield maybe ten bushels of grain. That's quite a bit. Oats come in hulled strains and hull-less strains; you want the hull-less strain. If you live in a northern, colder climate grow white oats; in warmer, southern climates grow red oats. Oats must be cooked before they can be eaten. They will cook much faster if they are rolled (flaked) first. This is a simple process done with a tool known as a *grain flaker* or *oat roller*. The grain seeds are rolled between two close cylinders to flatten them into flaked oats, otherwise known as oatmeal. Oats store best when in flaked form.

Plant oats by simply scattering the seeds, in blanket formation, all over your field. The soil must drain well, so try to use a high spot on your land. Plant in early to mid-spring, just after the last frost, in full sun. Try to plant just before a heavy rainstorm. The rain will bury the seed for you. Otherwise, you will need to till the ground after scattering the seed to get them an inch or so under the soil, in order to prevent birds from eating all your seed. If you have a high-pressure hose, you might be able to bury them that way. Water the ground well, and keep the field watered regularly. Oats will just grow and need little care other than watering, but do try to use a plot of ground that isn't prone to being overtaken by weeds.

Harvest oats in the early fall when the stalks are several feet high and the heads of the stalks no longer produce a milky liquid when squeezed. Cut the heads off the stalks and spread them out to dry for a few days. The stalks can also be harvested and fed to horses and goats, or you can compost them. You will need to separate the seeds from the heads (also known as the *chaff*) when the heads are dry. This can be done in many creative ways which involve shaking the seeds free. Traditionally, it is done on a breezy day so the chaff blows away while the grain seeds fall to a collection surface – such as a bed sheet – on the ground.

Quinoa: Quinoa is a highly-recommended off-grid grain, as it packs a lot of protein. This plant does not have the same appearance as traditional grassy-looking grain stalks. Quinoa is a cooler-weather crop that needs sunshine and warm soil, so it is typically grown in northern regions in the summer – but you can grow it over the winter down south. Plant when the soil temperature is around 60° Fahrenheit. Till the soil well and rid it of weeds before planting. These seeds get planted like vegetables, in rows about a foot apart from each other, but plant the seeds very shallow, only about ¼ inch deep.

Quinoa is a big, bushy, weed-looking plant and the grains form in giant clusters on top of the plant stalk. One nice thing about this crop is that it doesn't need watering and will keep growing in dry conditions. It is extremely weather-hardy, in fact, and can even stand a few frosts. Another nice thing is that the leaves are edible and can be used in salads. Don't eat all the leaves, however. The way you know when it is time to harvest Quinoa is when all the leaves drop off and just the stalks and seed heads remain.

Cut the seed heads off from the top of the stalk, let them dry for a few days, and then shake them over a collection vessel. The seeds will all shake free, and they have no husks. There will still be some chaff mixed in with the seeds, however, which can be separated by light wind or by using an electric fan. The seeds will then need to be washed in a colander or strainer, to get the sticky yellow gunk off of them. After the washing, let the seeds dry again for a few days before moving them to a storage container. Expect about a pound of dry grain from every ten plants. Save some of the seeds for replanting next year's crop. Dry quinoa seeds can be ground into flour, or they can be soaked and then boiled and will cook up like pasta or couscous.

Amaranth: This plant is very similar to quinoa, except that it is a warm-weather crop. It needs soil temperatures between 65 and 75° Fahrenheit. Therefore, it is typically grown as a warm-weather crop regardless of your location. The growing season is slightly longer than quinoa, and normally not ready to harvest until the first frost. Unlike quinoa, amaranth has no sticky yellow outer coating that must be washed off, so can go directly from harvesting (and separating the chaff) to drying and storage. Other than that, grow amaranth in the same manner as quinoa and don't worry about dry weather or watering. Health benefits are similar to quinoa.

Buckwheat: An often overlooked crop that shouldn't be, because it is wonderfully efficient, easy to grow, and packs a lot of protein. Buckwheat is a plant similar to Quinoa and Amaranth, not a grassy grain like oats or wheat. It is particularly well-known for growing well in very poor soil, and matures extremely quickly. The flowers will attract honeybees like no other plant. However, both extremely hot weather and frosts will kill it – so only grow it in northern regions during summer, or during the winter in the south. When most of the seeds have turned dark brown, it is time to harvest the heads. Harvest, separate, and dry in the same manner as amaranth – only there will be husks that must be removed, which come off easy when grinding the seeds for flour. They can then be removed by sifting the flour through a strainer. This is a highly recommended crop for homesteaders and the flour makes terrific pancake batter.

Pearl Millet: An excellent grassy-grain crop for feeding both humans and livestock, but only grows in hot summer climates. Prefers sunshine and frequent watering, but will tolerate drought conditions. Compost the soil well. Plant in early summer and harvest in late summer, in the same manner that buckwheat is harvested, separated, and dried. Millet will usually grow a second and possibly a third crop from the same stalks as long as the weather remains warm, so after harvesting the heads leave the stalks in place in the ground. Chickens love eating millet seed. Other forms of millet are less efficient than pearl millet. Boiled millet seeds will cook into a wonderful porridge; just add a little salt.

Molasses Sorghum: A very similar crop to millet; in fact, millet is a type of sorghum. This crop can only be grown in hot summer climates. The stalks resemble cornstalks when growing, but develop a large seed cluster in the head. Sorghum is a very popular livestock feed. Homesteaders who have the climate for it should consider growing it for the stalks, which can be used to make molasses. This crop needs a well-composted soil, but can pretty much survive any summer weather conditions including drought. Grow and harvest the grain in the same manner as buckwheat.

Wheat and Barley: These are terribly inefficient crops and require a lot of land to produce just a few pounds of harvested grain. They are not recommended for homesteaders. If you insist on growing one of these, go with wheat, and grow a large field of it. Fortunately, wheat does not require a lot of care once it starts growing. There are summer and winter varieties of wheat, so it can be grown year-round. The major hassle comes at harvest time. When the stalks turn brown, cut the heads off and bundle them for a few days, then beat the heads on the inside of a container. This will crack the husks and give up the seeds at the same time. You will still need to separate the chaff from the seeds, which can be done by pouring from container to container in a light wind or in front of a fan. Other than that, grow in the same manner as oats – just grow a lot more of it.

Re-growing grain seed: All grains are seeds. That is to say, the part you eat is the seed. Simply save a bunch of the grain from your harvest and store in a protected container to plant for next year's crop. It is best to save the late-season grain for re-growing, and to let it dry on the stalks a little more than your eating-harvested grains. After harvesting, thoroughly dry the seed grain before storing. Be careful not to damage the harvested seed you save, and keep it all sealed in a safe place, away from rodents and insects.

Composting and Making your Own Fertilizer

Composting for an off-grid homestead is kind of a major project and must be taken seriously. Fortunately, once you have the system set up, it becomes fairly routine and isn't much of a hassle. But you need a lot of compost. Those trash-can-sized plastic bins that some people keep in their backyards aren't going to cut it. You should keep several large compost heaps in strategic locations around your growing plots. They need to be contained within structures, and protected from raccoons.

A common way to accomplish that is by making large, square wooden boxes. Just put four boards together on the ground and you are ready to start. Frame them around sturdy stakes so you can build the structure higher as you go. When it gets about chest-high, that structure is done and you can start a new one. Remove one of the bottom boards at that point for harvesting the compost.

In a compost heap, material goes in at the top, and the harvested compost comes out from the bottom. In between, the material degrades and breaks down and turns into the finished product, which should look like a deep-colored, rich soil. Start the compost heap on top of freshly tilled earth, allowing worms to work their way up into the pile, as they help with the process. Dig out a few inches of ground under the bottom boards and put in a layer of straw or small twigs, to help with drainage and aeration. On top of that, try to make your first layer a combination of manure and dry grain stalks or grass clippings, or any nitrogen source.

It is important to pay attention to how you add the compost materials. You want them to go in layers, and sprinkle a layer of dirt (including some earthworms) in between each layer. Every few weeks, take a metal rake or pitchfork to the top foot of the compost heap, mixing and turning and raking it, and adding a bit more earth as you turn it, to aid the decomposition process. As you build the layers, alternate them between moist and dry materials. Keep moist materials loose and prevent them from compacting into clumps. Sprinkle in wood ashes in thin layers to prevent clumping. Overall, a compost heap does need moisture, so during the dry season water it a little, and open up the top some during rains. Remember, you want it moist but not soaked – so do not overwater or leave open through an entire heavy rainstorm. You know a compost heap is working when you see it giving off steam occasionally.

A cover of some type can be any material to keep out rain and raccoons. A large wooden board is probably most practical.

The following materials are what you will be composting. You want to keep about 1/3 nitrogen-based material to 2/3 carbon based, and mix the nitrogen stuff up well with the carbon for best results:

Nitrogen-based Materials

Fruit and vegetable scraps

Other table scraps (but no meat, bones, or fish!)

Lawn, grass, and garden clippings (nothing with seeds!)

Flowers and fleshy plants (thin layers, add dirt)

Seaweed and kelp (thin layers, add dirt)

Coffee and tea grounds (including coffee filters)

Chicken manure (excellent compost activator)

Carbon-based Materials

Tree leaves and shrub prunings (shred first if practical)

Straw and hay (avoid the hay seeds if possible)

Pine needles (dry only and use sparingly)

Wood ash (sprinkle in thin layers)

Paper products (no color, no gloss)

Cardboard (shred first)

Corn cobs (chop up first)

Corn stalks (chop up first)

Dryer lint

Wood chips and sawdust (use sparingly)

Eggshells (crush them first and mix with dirt)

Your own compost will likely be the only fertilizer source you need for most of your mini-farming projects, and it will be unbeatable. However, there are times when you may want a high nitrogen-boost in soil preparation, such as when starting some of the crops discussed in the prior chapters which recommend adding a high nitrogen fertilizer when planting. You can make your own high-nitrogen fertilizer in the following methods:

Fish emulsion: The best high-nitrogen fertilizer by far, and easy to make at home. You just need some fish. Chop and grind up (the best you can) a few fresh fish and add to a bucket with a few of your other standard carbon and nitrogen-based materials. For example, add some ground dry leaves, grass clippings, straw, and a little sawdust. Mix it all up, seal the bucket, and let it all rot for several weeks. The result will be a very potent nitrogen-rich fertilizer.

Rabbit manure: Another excellent high-nitrogen fertilizer source. If you raise rabbits, save the droppings and cherish them! You can add rabbit manure directly to soil any time you want to add a nitrogen-rich fertilizer.

Eggshells: By themselves, eggshells are a calcium fertilizer which carry a small dose of nitrogen, great for fruit trees. Dry them out, however, and then crush them and grind them into a powder. This is a self-sufficient method of *liming* soil. Spread the powder around the base of trees and shrub-crops.

Coffee grinds: This is another good lime conditioner for trees and crop-producing shrubs. If you are one of those off-gridders who has a lifetime supply of coffee stored up, saved the used grinds, dry them out, and use in the same manner as eggshell fertilizer. Coffee grinds are about 2% nitrogen.

Seaweed: You can make an excellent low-nitrogen spray fertilizer from seaweed and kelp if your land is near the ocean. Collect a bunch of it from the beach, place it in large containers, then fill the containers with water and seal them. In about a month, the seaweed will have completely decomposed into brown water that is great for spraying on the leaves of vegetable crops and/or watering the soil with. If a higher nitrogen content is desired, mix in some of your homemade fish emulsion.

Salt and Sugar

These two staples of the human diet can present problems for modern day homesteaders in the northern hemisphere who wish to become self-sufficient. Yet, cultures for thousands of years were able to supply themselves with these elements. If they could do it, it figures you should be able to, also.

Boiling saltwater: This will actually produce good, usable table salt (in sea salt form). All you have to do is boil the water to evaporate it from a clean pot of saltwater, and the salt will remain behind. Obviously, that takes a while. The finished product will look like small flakes rather than the crystals we are all used to, but it will dissolve while cooking and flavor your food, and can also be used for all other salt purposes such as preserving meat. The boiling process is messy, however, because as the solution reduces it begins to spit the salty muck out everywhere. To avoid that, you can stop the boiling when you get down to the thick-slushy-salty muck substance and spread it out on a surface in the sun to finish drying. Or, just use a really big pot to do the boiling. Figure on getting one large spice canister full of finished salt for every gallon of saltwater boiled, which is an impressive yield in my opinion. Filter the saltwater through a clean cloth before boiling it to remove large chunks of impurities.

Evaporating saltwater: You can avoid the boiling altogether and just evaporate the entire batch. The resulting salt will form the more familiar crystals with this method. Use a large rectangular non-metal vessel such as a baking pan. Filter the water through a cloth, cover it, and set it in a warm place where the water will evaporate off. This process will take a month or so, depending on the weather. Set the pan next to a fireplace or wood-burning stove to speed the process up. Don't use a metal vessel or the salt will destroy it.

Hickory tree branches: You can get some usable salt by boiling young hickory branches until the water evaporates. It will leave a black residue behind that is salty and can be used in cooking. Hickory is also a good tree to have around because the wood is very hard and good for building, and slow burning in stoves and fireplaces. If there are no wild hickory trees in your region, and you have the available land, consider growing a small grove of them.

Finding salt in the wild: You need to have salt flats, salt mines, or salty ground nearby in order to do this. If this is the case, you might be able to simply go to the salt grounds and harvest it right there. In a post-apocalyptic society, these might be well-guarded and you may need to trade for it. If there is an area of salty ground nearby, most likely it will have *saltbrush* plants growing on it, which tolerate salt well and retain salt in the leaves. You can grind up the leaves and boil them away to a salt residue in the bottom of the pot. It might be worthwhile to become familiar with this plant now.

Necessary salt in the diet: The human body does require salt as an essential mineral. If you have a shallow well on your land, there may be enough salt in the groundwater supply for this purpose, so pay attention to the sodium content when you get it tested. Purify the groundwater by a method which does not remove the sodium (such as a quick boil) and drink it regularly if you have decent sodium levels.

Otherwise, you can probably get all the salt you need from a balanced diet. Animal products such as meat, fish, and goat milk products provide sodium. So do the following crops:

Asparagus

Beets

Celery

Garlic

Lemons

Lima beans

Mushrooms

Peanuts

Potatoes

Sesame seeds

Soybeans

Spinach

Summer squash

Swiss chard

Turnip greens

Making sugar from beets: Approximately 25% of the world's commercial sugar supply actually comes from beets. The remaining comes from sugarcane. Since sugarcane is a tropical climate crop, the northern hemisphere homesteader will need to make it from beets. As already mentioned, you need to grow a specific type of beet for sugar production: the sugar beet. These are white-colored, long, and cylindrical in appearance. They look more like a turnip than a regular beet. Grow, harvest the beets, and harvest seeds from them in the same manner as regular beets (see the outdoor vegetable chapter).

Making sugar is a boiling process. Dice the beets and simmer them in a big pot for one hour, then strain out the beet pieces and either eat them or feed them to your animals. You will now have rich-colored beet water that needs to be boiled down to thick syrup (known as molasses), which will take a couple of hours of boiling to produce. Transfer the finished molasses to jars or plastic containers for storage. You can simply use the molasses syrup for your sugar needs, or you can let some of the jars dry up, harden, and crystalize. That will take 6-10 months, depending on your climate. Break up the hardening molasses once in a while and mix up with the remaining syrup. Eventually, you will have completely dry beet sugar in crystal form which can be used as common table sugar.

Making sugar from sorghum: After harvesting the seeds for grain, sorghum stalks can then be made into molasses. Talk about an efficient crop! The molasses production needs to be done on the same day the stalks are harvested. Strip the

stalks clean of all leaves, roots, and dirt. Then they must be flattened by running them through a mill device with loosely-set rollers in order to have the sweet green juice squeezed out of them, which can be collected in a bucket. Boil the liquid for a few hours, and continually scoop the resulting foam out from the top of the pot as it forms. When the liquid finally stops foaming, it's done. Store the syrup in jars. Sorghum molasses will not harden and crystalize like beet molasses, so be content to use it in syrup form.

Olives and Cooking Oil

You need to have some oil for cooking, and also as a source of healthy fat in your diet.

Olives: These are easy trees to grow, and there are a tremendous variety of cultivars available, all of which make good oil – so you may as well grow a variety you enjoy eating. Unfortunately, they cannot stand cold climates. Specifically, temperatures below 20° Fahrenheit will kill the smaller branches, and when the mercury drops down to about 10°, the entire tree will die. They do need some cool weather, however – say some winter days in the low 40's – in order to complete their cycle and be productive. Other than that, olive trees are incredibly hardy and will grow in poor soil, rocky areas, and on slopes. They get pretty big and produce a lot of olives, so one tree may be enough for your family. Olives are self-fruited and need no pollination.

Olives are harvested in the fall. Spread a sheet, netting, or tarp on the ground under the tree. Shake the tree branches, hit them with a rake, do everything you can to shake them off the branches. Make sure you are ready to process the olives into oil (or brine them to preserve for eating) before you harvest! Olives have a very short window before spoiling, just a matter of days. Preserve the ones you wish to eat by pickling them, but go easy on the vinegar and heavy on the salt in your brine.

Oil can be made by coaxing the oil out of crushed olives into a warm water solution, then draining out the water, then waiting a month or so for it to settle. Wash the olives first, then grind them into a paste (preferably using a mill of some type), then mix them into large jars or containers with warm water. Let the mixture sit for an hour or so, and stir often. Then, strain out the olive paste. The water will go to the bottom of the resulting oil/water mixture, so you can then pour that off and seal the container. In a few weeks, you will have good, tasty olive oil.

An alternative method is to simply squeeze the freshly picked olives in a press of some type and collect the oil. You should crush the olives somewhat first; one method is by putting them in a burlap sack and smashing it on a rock over and over. Then you can just press the entire burlap sack. You just need to get creative and invent some kind of press; for example, two medium sized boards and large C-clamps that can tighten the boards together. Have a big enough collection vessel under the press to get all the oil drippings. Repeat until you have the desired amount of oil.

Sunflowers: These plants grow like weeds anywhere in the spring and summer. Plant them after the last frost. One small crop will yield enough cooking oil for your family for the entire year. Make sure you grow the black oil type of sunflowers, which are the kind that birdseed is made from, as these produce much more oil than the confectionary type grown to make salty snacks for humans. Just pick a small plot of land and cover it with seeds, then water. If the birds don't find the seeds first, you will have a thick sunflower patch in a matter of weeks (you might cover the area with some mesh wire or netting to stop the birds). Don't worry about conditioning the soil, and don't worry about watering the plants.

In 2-3 months' time, it will be time to harvest the seeds. You will know its harvest time when the pedals fall off the flowers and the flower heads droop down. Just cut the

heads off and let them dry for a few days. When dry, shake the heads over a bucket to get all the seeds out of them. Save some seeds to plant for next season. Make oil out of the rest.

To make sunflower oil, you need to grind up the seeds somehow. I will leave this part to your ingenuity. You can purchase special mills known as *seed oil extractors*, but they are not cheap. All you really need is a way to grind the seeds and collect the resulting oil which will drain. Almost any grain mill will probably work, and you can put some window screen over the collection vessel to keep the seed particles out. Put the oil in jars and let it settle for a couple of weeks before using.

Nuts: You can grind the following types of nuts into good cooking oil in the same manner as sunflower seeds: Peanut, almond, hazelnut, beechnut, and oil palm kernels. You can also do this with pumpkin seeds, but pumpkin seeds are such a good source of protein (and other nutrients) that I would rather cook and eat them. Other seed sources of decent cooking oil include: safflower, niger seed, sesame, rapeseed, linseed, and hemp (if you're into that).

Soybeans: Making oil from soybeans is a complicated process, so it is not recommended for homesteaders. Growing soybeans is easy enough, but they are an inefficient food crop. They do not grow high like green beans and peas, so they take a lot of ground room for a relatively low yield. However, they do pack a lot of protein. These plants cannot stand extreme heat or extreme cold, so it is recommended to place them in pots in a greenhouse if you insist on growing them.

Corn: Please don't waste your precious corn crop to make a little oil. Make into cornmeal what you don't eat or feed to your animals.

Raising Domestic Livestock

On a small homestead, you will need to do your livestock production on a small scale. Anyone can raise a few chickens and rabbits. A couple of goats are easy enough to keep as well, and will keep your family supplied with dairy products. Larger livestock, such as ostriches or cattle, require more room, more care, and more feed – not to mention the additional challenges involved with slaughtering them for meat. If you ask me, keeping small livestock and a few goats is the way to go, especially if you live near wilderness areas where fishing, hunting, and trapping can put meat on your table.

Chickens: The two most often recommended breeds for homesteaders are *Brahma* and *Silkie*, because the hens of these breeds are still naturally good mothers for making more chickens. (Commercial production practices have taught most other breeds to ignore reproduction and just lay eggs and forget about them.) Both these breeds are also good for eating, but Silkies are scrawnier birds, so are less efficient for meat.

To keep chickens, you need to have a coop where they can nest and roost (spend the night). You also need a *run* where they can peck around outside in the daytime. In fact, they will get bored and upset with the run every few weeks and will then need a different run, and/or you can let them loose to roam around your land during the day. Most chickens will come back to the coop at night naturally on their own – but if you let them freely roam the land, you will occasionally need to catch one or two and manually put them back in the coop at night, and sometimes you won't be able to. Don't let chickens roam unattended when you have young vegetable plants growing, or they will ruin the crop. One good solution for the chicken run is to simply move it to a different place every couple of weeks, just changing the angle of it from the coop, giving them fresh ground. The manure from the old run will cause new grasses to quickly grow back, so you can keep rotating the run location. I would still let the birds out to roam free once in a while.

Chickens need to be fed and watered. Don't give them a deep source of water. Rather, provide it in shallow troughs. The feeders should be "hanging" and positioned off the ground at about their shoulder height, and be kept inside the coop (otherwise they will scatter the feed all over the ground and mix it with their manure).

Chicken feed is made mostly from grain. They will eat grain, seeds, fruit and vegetable scraps, herbs, plant leaves, and grasses. Anything green or that was growing and non-poisonous. The tops of your sugar beets are great, as are the leaves from your broccoli and cauliflower plants. Chickens love oats; another reason to grow a lot of oats. Keep the feed grain in the feeders, but throw other types of food for them in the run, which is known as *chicken scratch*. They don't really eat all that much, so it's pretty easy to keep a small flock of chickens.

Chickens also need *grit*, any source of non-fiber material such as bits of gravel, so you may want to smash up some rocks and mix the fine gravel into their scratch. Use

some of your powdered eggshell fertilizer for grit as well, as this gives them a needed source of calcium.

Put sawdust, straw, and/or wood shavings on the floor of the coop. A small, 7-foot high coop that is about 8' by 4' in dimensions will easily house a dozen chickens at night. You need to have nesting boxes built at an upper level above the ground, perhaps about 4 feet up. Fill the nesting boxes with more straw or wood shavings. Place the nesting boxes at the back of the coop against the wall. Consider making doors on hinges above the nesting boxes so you can open them from the outside of the coop, reach in, and retrieve the eggs without entering the coop. You need one nesting box for every 3-4 hens. You also need several roosting poles up higher in the coop. In a 7' high coop, put the roosting poles across the top of the coop at 5' and 6' high. This is where the chickens will sit and sleep at night. You need some ventilation in a chicken coop as well. This can be done by installing a normal window-sized opening with a chicken wire screen over it.

You need a rooster or two in order for the eggs to become fertilized and hatch into new chicks. When you decide to raise chicks, you will need some fake eggs. Chickens are dumb, so any fake egg works, be it rubber or painted wood or whatever. Put four or five fake eggs in one of the nests and keep them there. One of the hens will probably decide to be a mother and start sitting on the eggs all the time, not leaving to go out in the run much in the day. There is your mother. She will stop laying eggs and not eat much from this point forward. You now need to section her and that nest off from the rest of the flock, or put them in another special, smaller coop. Replace the fake eggs with some real ones from the other nests when she is off the nest briefly, or at night. Add a few more the next day, so you have a nest of 7 or 8 eggs. Make sure she keeps nesting the real eggs. After another week or so she won't get off the nest at all, so you will need to pick her up and set her in front of water and feed every couple of days to sort of force-feed her. Leave the eggs alone. In a couple more weeks, the eggs will hatch and you will have chicks. Feed the new chicks a mix of grain and herbs and give them water in very shallow bowls (or they could drown).

New chicks need to be kept very warm the first few weeks and will stay under the mother much of the time. You can help by putting a light bulb in the nursery and/or only hatching chicks during the hot summer months. The mother will take care of the new chicks, and after a month you can release them all back into the general flock. Keep in mind that hens are only good egg-layers for 3-4 years, and then you need fresh young chickens again to replace them. So, you will want to raise a new flock of chickens at least once every couple of years, being as you may only get 3-4 chicks per hatch and don't know how many will be roosters. Keep only two or three adult roosters; trade or eat the rest.

Please note that eggs and chicken meat must be fully cooked or you run the risk of contracting serious diseases such as salmonella poisoning.

Ducks: You can raise ducks in much the same manner as chickens, except they don't take well to being cooped up, and they need a little water hole to play around in (which breeds mosquitos in the summer). Duck eggs are a viable substitute for chicken eggs, and in fact are more nutrient-efficient. Ducks are also much more production-efficient, as they lay up to three times as many eggs per year, and

continue to lay them for several years longer than comparable chicken hens. The drawbacks are that ducks are noisy and messy. They are also easier targets for predators, since they sleep on the ground at night, and will not go back into their pens by themselves unless herded or bribed. They can be fed the same food as chickens, but will find much of their own food roaming around in the daytime.

Domestic ducks raised from chicks will hang around the homestead and not fly away. Feed them grain and herbs as you would chicken chicks. You can raise the hatchlings in a tub that has a light bulb in it and some straw or wood chips in the bottom. Ducklings don't need as much heat as chicken chicks.

If I were going to raise ducks, I would not even bother penning them in. I would start by raising a bunch of ducklings up and then let them wander the land freely, feeding them good grain close to the house so they know where home is. The females will make their own nests and you can locate them and harvest eggs every day. You can leave some of the nests alone and a new flock of ducklings will happen naturally. I would keep a couple of well-trained dogs around to ward off predators. As far as species goes, I would probably go with harlequins or magpies, being a good cross between egg producers, meat flavor, and good mothers.

Rabbits: There are two reasons homesteaders raise rabbits: for wool, and for meat production (three if you count fertilizer production from the manure, but that is mostly considered a side-benefit). Those raising rabbits for wool generally go with an angora breed. Wool rabbits are not good meat producers and vice versa, so if you want both wool and meat, you will need to raise two different breeds and keep them in separate pens to prevent cross-breeding. Chinchillas, Californian, and New Zealand rabbits are the most popular breeds raised for meat. These species breed particularly well and do a good job of raising their own young, so you don't have to. Note that you will get some good usable rabbit pelts to make clothes from, even from the meat breeds. Start with two males and three females. You might get 50 pounds of meat or more per year from this small startup (and lots of pelts).

Rabbits need to be cooped up or they will simply wander away or get eaten by predators. You certainly don't want them loose in your vegetable garden! Some people simply raise them in a shed, but rabbits really do need a little outdoor time. I suggest building a structure much like a chicken coop with an indoor area and a movable run attached. Rabbit manure is fantastic fertilizer, so the ground where the run was last sitting will grow just about anything. You could harvest wild weed seeds (such as dandelions) and grow them there; rabbits love them.

Inside the structure, have hanging feeders and water troughs just as you would inside a chicken coop. Rabbits love grains (especially oats) but will eat anything that grows including hay, herbs, fresh lawn clippings, anything cut fresh from your garden, or fresh weeds cut with a sickle outside your land. Give them some garden vegetables once in a while, too. Clean the inside structure from manure regularly, and keep that wonderful stuff for fertilizer.

Please note that rabbit meat must be fully cooked or you run the risk of contracting serious diseases such as undulant fever.

Goats: If you are going to have any dairy food, you must keep goats or a milk cow – and goats are a much more practical choice for most homesteaders. A milk cow has a limited lifespan, whereas you can keep a few goats and have them reproduce new generations regularly, occasionally enjoying some goat-meat dinners. The first thing you need to know about goats is you need extremely good fencing to keep them in their pens (but never barbed wire). Even then, expect them to get out once in a while, so keeping a strong perimeter fence up on your land is also recommended.

Put a shed in the corner of your goat pen so they have an indoor place to retreat to – about twelve square feet per goat will suffice. You need at least 200 square feet of outdoor pen area per goat. When not breeding, you could keep a male in a separate pen structure. Be careful around the males! They can get ornery with no advance warning and deliver a world of hurt in a blindside attack. The fencing around the goat pens needs to be very sturdy and at least five feet high, higher if there are coyotes in the area. Maintain the fence structure arduously, as goats will punch weak spots in it, and will discover and break through any weak spots quickly.

Goats need shade and structure to climb on, but they will kill trees and bushes, so it is best to have a tree growing in the pen (hickory? fig? walnut?) with metal fencing around the tree trunk to protect it. Any old structure makes good climbing equipment for goats; parts of old sheds, barrels, boulders and rock piles, cement pylon pieces, old tires, etc. Be careful, however, that any metal fencing or structure does not contain potential strangling elements such as loose metal wire loops or rope netting. Goats experiment and get into everything.

Feed goats hay, straw (dead, dry grain stalks after the harvest), weeds, plants, fresh garden clippings, and some grains once in a while – essentially, the same stuff you feed rabbits, just a lot more of it. In addition, grow different kinds of shrubs and bushes (including hazelnut?) along the outside fences of their pens, so that some of the bush branches grow over into the pens for the goats to eat. Encourage grass, weeds, and plant growth in the pen by spreading rabbit or chicken manure and weed and grass seed. Consider having an extra goat pen/housing established where you grow up plants, bushes, and weeds in the empty pen and rotate the pens accordingly, growing up one while the other is occupied. I would also take my goats for walks on the land occasionally (especially the girls), where they can graze the shrubs and grass, putting them back in their pens before nightfall. Don't leave them unattended around an unprotected vegetable garden!

A female goat will start giving milk after having her first kid. Wait until the kid is weaned before milking her (this happens naturally). You should then milk her twice per day, once first thing in the morning and once in the early evening. You will get one to three quarts per day from her depending on the season, more than enough for making all your favorite dairy products. The she-goat will continue to give milk for up to three years before needing to breed again to repeat the cycle. Milking is pretty straightforward; bring some grains or yummy vegetables in a bucket and milk her while she is eating her treat.

A word about sheep: You can also get milk from sheep or rabbits – but milking rabbits is an entirely inefficient process, and raising sheep is a big production that is beyond the scope of most backyard homesteaders. I suppose you could raise just a

few sheep instead of (or in addition to) goats and get milk that way – but shepherding demands a lot of attention and a lot of grazing land, even for just a few sheep, and the milk production is less efficient. Also, sheep milk has different properties and is not really suitable for butter or cheese production. Goats are a much more practical solution for most of us. I can't see raising sheep on a small homestead, other than for having them for pets or for a small supply of wool.

Pigs: While many homesteaders raise pigs, I don't recommend it unless A) your land is large enough that your farming projects produce a lot of extra grains, fruits, and vegetables, B) your land is not near any productive hunting or fishing grounds, and C) you are not concerned about your cholesterol level. Pigs consume a heck of a lot of food and water, and are disease-prone. Not worth the hassle if you ask me, especially since the meat is fat-laden and rather unhealthy, and especially since the meat can only be preserved by freezing. Since they eat the same produce as we do, it is more efficient (and a lot healthier) just to eat that food yourself in the first place. I think pigs make better pets than livestock.

If you insist on raising swine for meat, put them in pens that are structured like goat pens, only not as big and with fences that are a lot lower. They need an indoor area with bedding, and some room to move around outdoors in the daytime. Crowding them makes them unhappy and more disease-prone. Give them a mud hole to cool down in, as pigs don't have sweat glands. Put some objects in their pens for them to play with such as balls, branches, or old bicycle tires. Pigs also need some protein in their diet and will eat bugs and worms to get it, so give them a nice batch of worms once in a while, or throw them some meat scraps, especially innards from other animals like chickens or rabbits. If you end up with piglets, be aware that they need to be kept warm for their first 60 days of life.

Growing Hay

The plot of land over your septic tank (and just downhill from it) is probably not an area you want to use for human food production. It is, therefore, perfect for growing hay, a crop specifically intended as livestock feed and hen nesting material. We are talking about a plot the size of a tennis court, maybe a little larger, on most homesteads.

Hay is simply cut and dried tall grass that is rich enough in nutrients to make good animal fodder. There are a dozen or so popular varieties that are intentionally grown in North America. Alfalfa is the best known; it prefers cooler climates. Mix in some orchard grass with your alfalfa for a nice little hayfield. Down south in warmer climates, consider growing *switchgrass* or *indiangrass*.

Till the ground well and mix in some manure before the first planting, which should be in the early spring. Hay grasses are perennial, but not forever. You might get 5-7 years production from a hayfield before needing to replant. However, expect 3-4 harvests from your field each season, beginning in early summer. Hay should be harvested when it is about 5 feet tall. Cut it with a sickle during dry weather and let it dry on the ground where it falls. Gather it into a barn or shed and feed your animals with it as needed. Don't let cut hay get wet. You might also consider planting some hay grasses in your goat pens for grazing purposes, as it grows fast.

Making Goat-Milk Dairy Products

With one to three quarts coming in every day from just one producing female goat, you will have a lot of milk on your hands. So, you will want to make fresh dairy products on an ongoing basis. These might even make good trade goods for some of your neighbors.

Cheese: Making cheese from your goat milk is a very simple process that can be done on your stovetop. All you need is a large pot, a cooking thermometer, a strainer, and some vinegar (vinegar from your homemade wine or cider works great). Put one gallon of milk in the pot and heat to 185° Fahrenheit, stirring frequently. Hold at that temperature. Add ¼ cup of vinegar and stir. Keep holding the temperature. Soon, little curds will form in the mixture. Strain the contents of the pot into another pot and turn off the heat. Leave the strainer over the second pot so the curds are still getting a little steam, and wait. After a while, the curds will have formed into familiar-looking large soft clumps of cheese. Remove them to a bowl and mix in a teaspoon of sea salt (or a smidgeon of black hickory branch salt paste) and some dried herbs of your choice for flavor. You now have goat cheese, which can be eaten directly or used as a cooking ingredient for any recipe that calls for cheese.

Heavy Cream and Butter: Butter is simply cream that is stirred a really long time, until part of it hardens into butter. That means you must have cream in order to make butter. Goat milk is infamous for being difficult to separate the fats, which means making cream without an expensive gadget known as a *cream separator* can be a bit of a challenge. If you don't have one of those devices to make heavy cream with, it can still be accomplished by chilling large quantities of milk and skimming off the heavier, creamier portions which rise to the top. It is recommended to chill a gallon of milk in a pot every day and skim it the next day until you have about a pint of skimmed cream collected, which should take about five days. The leftover milk each day is known as *skim milk* and is quite healthy, so it can be consumed, used for cooking, or fed to pigs (you cannot make cheese from it, however, as the fat has been removed).

The skimmed heavy cream can now be whipped into butter. This is best done in a chilled metal bowl with an electric high-speed mixer, but can be done by hand if you want a real workout. Eventually, little hard curds of butter will form in the bottom of the bowl. When you have enough of them, strain them out of the liquid (which is now known as buttermilk and can be used make biscuits, pancakes, waffles, and other baked treats). The butter pieces should be rinsed well with cold water, lightly salted, and chilled for storage. You might get up to a half-pound of butter from the original pint of cream. It will have a delicious, mild flavor and can be used anywhere butter is called for.

Whipped Cream: An alternative method for making butter and buttermilk – and whipped cream – simply involves shaking a sealed mason jar that is half-filled with your skimmed cream. In a very short time, you will have a jar full of whipped cream, and can just stop and use it if whipped cream is your goal. Keep on shaking and shaking that jar and you will eventually get butter chunks and buttermilk. Pour off the

buttermilk, rinse the butter, salt it, and chill it so it hardens. If you don't rinse all the buttermilk from the butter chunks, the butter will quickly spoil.

Sour Cream: Save some of your heavy cream and buttermilk to make sour cream with. Warm 1 cup of cream to 75° Fahrenheit, then add 1 tablespoon of buttermilk to it and set the whole thing out at room temperature for 24 hours. Then transfer to a sealed container and chill. Voila, you have sour cream. If you like it thicker, add a little more buttermilk next time.

Survival Fishing Techniques

I am an avid fly fisherman, but survival fishing is a different sport. You are not looking to give the fish a sporting chance here, and just want to put meat on the table. So, figure on fishing the old fashioned way; the way Native Americans and pioneers did it, the way you see those guys on survival television shows doing it. That might mean using nets, spears, a bow and arrow, homemade hooks and line, or maybe even chasing a fish in a small stream with your hands and scooping it out onto the bank. Nearly every kind of fish is edible, and most are quite tasty.

Making Natural Cordage

As a survivalist, you should learn how to make cordage (rope or twine) from natural elements in your area. It can be fun, and it just may come in handy one day. Thin cordage made from fibers off the stalks of certain plants and vines can be made into usable, effective fishing line. Especially from:

- Nettle plants (commonly called *stinging nettle*)
- Dock plants
- Thistles
- Brambles (such as blackberry)
- Milkweed
- Dogbane
- Willow herb (also known as *rosebay*)

It is the outer fibers from the stems of these plants that are twisted together to make thin, strong cords. First, you must strip the stems/vines of leaves and thorns, then break them in the middle somewhere and strip off the outer strands. Dry them, then get the strands damp (but not soaking wet) to twist into cordage. This is done by first twisting each individual strand up, then bending it in the middle so you are working two strands, rolling and twisting them together into a cord, and adding more strands in as you go to keep lengthening it for as long as you see fit. The method takes practice to learn. If the grid is still up when you are reading this, I recommend watching some YouTube videos on making nettle cordage to help you learn the technique.

You can also make cordage from the bark of certain trees, especially:

- Basswood
- Cedar
- Elm
- Willow

Bark cordage will not be as thin as plant cordage and thus not as suitable for fishing line (but still may be good for making nets).

Some tree roots also produce good fiber strands for making cordage, especially:

- Pine
- Alder
- Birch

The roots that are nearest to the surface are the best ones to harvest fibers from for this purpose.

Marram grass root can also be used to make cordage.

Once you get the hang of making cordage, you might discover other vines and roots with good strong fibers that can be used for this purpose. I urge everyone to learn to do this while the grid is still up.

Making Fish Hooks

Fish hooks can be fashioned from a variety of materials, including safety pins, small metal scraps, hardwood twigs, thorns, nails, paper clips, animal bones, bird claws, and sea shells. With good tools, decent fishhooks can be whittled or formed from any hard material which can be sharpened.

Native Americans used *gorge hooks*, which are nothing more than strong toothpicks really; hardwood twigs an inch in length, sharp at both ends, and notched in the middle where the line is attached. The gorge hook is completely covered in soft bait which the fish swallows whole. So, you don't set the hook right away. Instead, you wait for the fish to swallow the bait and move on, giving it a little line, then you yank on the line hard. Hopefully, the sharp twig turns sideways and lodges in the fish's throat.

Making Lures

I tie my own flies, so I can tell you lures do not need to be beautiful to be effective. Sometimes my ugliest, most beat up flies – that are nothing more than a few strings of material and an unwound feather left hanging – will catch the most fish. I saw a survival show once where the guys caught fish with just strips of white cloth attached to a hook retrieved through the water. Anything that moves through the water in a way that might look like an injured minnow or natural prey will function as an effective lure. Shiny bits of metal are good, pieces of jewelry will work, and of course fur and feathers arranged to look like insects.

Finding Bait

Bait fishing is generally much more effective than lure fishing, especially in a survival situation. You can always rely on earthworms. They are everywhere; all you have to do is dig in the ground for them. Maggots, chubs, caterpillars, tomato worms, and all other forms of worms will work as well. All fish eat worms. Earthworms will even catch saltwater fish, although they are not natural there. If it is alive and wiggling and worm-like, fish will eat it even if they have never seen a worm before. They can't resist.

Almost any kind of live (or nearly alive) sizable insect will catch fish as well: grasshoppers, dragonflies, beetles, snails and slugs, and whatever else is flying by or crawling along. Save some of those garden pests for you next fishing expedition.

Trout and catfish will also eat goat cheese, especially if you add some garlic to it and let it sit out so it spoils and gets a little stinky. This is a good bait to try with the gorge

hook method.

Most fish eat cut up pieces of other fish as well. When you catch fish that are too small to eat, use them as bait for the larger fish.

The Direct Pole Method

A big, strong hook at the end of a long wooden pole (we are basically talking about a long, narrow *gaff* here) can be baited and used to snag sizable fish, without using any line. Completely cover the entire hook with just a big mess of large, wiggling earthworms. Stretch out the pole and gently lower it in the water, down to the bottom. That is going to get some fish's attention, and it will probably come over and take a few test bites at the wiggling mass of worms a little while after the pole has stopped moving. You have to be both patient and quick for this method. Never set the pole down. When you feel something fooling around down there on the other end, yank it back hard and fast. Hopefully, you will snag the fish somewhere, maybe even inside the mouth.

Bobby Poles

This is simply a method of baiting a bunch of hooks and lines and leaving them in place, coming back later to collect any fish which managed to get hooked. The bobby poles are just long sticks stuck in the mud, at an angle, with your line tied to them. It helps if they are flexible. You can also just tie hand-lines to brush on the bank.

Nets

Large, rectangular nets made from your natural cordage can be employed in a variety of ways. You and a partner can get into the water and simply sweep a wide area with the net held open, perhaps dragging it along with weights holding it to the bottom. It can be laid flat on the bottom for a few hours, and then pulled up by cords along all the edges to form a trap net like you see commercial fishing boats use. You can approach a cove with the net open and have something or somebody scare the fish out into the waiting net. If you have netting, just use your ingenuity and apply it to the geography of the water you are fishing.

Spear Fishing

Homemade spears can catch fish. You have seen them do it on *Survivor*. The spears can be made from any long, strong, wooden stick that has been sharpened. The spear can be thrown, or it can be simply jabbed, never leaving your hands. Obviously, you need clear water so you can see your target to fish in this manner. Also, it is not quite as easy as it looks and will require some practice before you can hit anything.

Bow Fishing

A bow and arrow can be used in the same manner as spear fishing, as long as you have a line tied to your arrow for retrieval. You will need to become a pretty good archer, however, and learn how to adjust for the water resistance before you hit any fish this way.

Trapping Fish

In slow moving rivers and tide pools, fish can be herded into traps. A trap might be a net stretched across an entire section of a stream, or it might just be a series of

wooden stakes placed side by side in the water at a strategic location in an encompassing shape, such as a half-circle. Fish are chased into the trap where they can be easily netted, scooped with hands, or speared. One effective way of doing this is by making a complete enclosure and then an open V-shape in front of it with only the point of the V open for fish to go through. After the fish are chased downstream through the V, close off the point of the V with more stakes – you now have caged fish.

Hand Fishing

Hillbillies in the south catch large catfish this way. It takes a little practice to learn where the big fish like to hide. Usually, it's under a cut bank or in some kind of structure like a hollow log. Get down there and feel for the fish. When you find one, feel along its side until you come to the gills, grab it by the gills and lift it out. If you are not used to handling catfish, be aware that they have painful spikes in their pectoral (side) fins! Of course, you might also be able to just spear the darn thing.

Backyard Fish Farming

Having your own fish pond is a reliable way of providing fish dinners for your family. This is not as daunting of a task as it may seem. Fish ponds will become their own self-sustaining micro-environment with just a little encouragement from you. All you need is some space and a water source to make one. Having a fish pond will also make your ducks very happy, and quite possibly attract wild ducks as well.

The best eating fish for backyard farming are tilapia and catfish. Both are very hardy fish that can stand extreme temperature fluctuations in a semi-deep pond. They are both excellent eating. Bluegills are another popular choice, and they breed well in backyard ponds. If you live up north and have a creek running through your land, you might want to go with trout instead, and divert the creek to run in and out of the pond. Regardless of where you live, you will also need some mosquito control fish. Mosquitofish are highly recommended for this, but goldfish and bettas will also work. If your mosquito-control fish do not survive the winter, just replace them each spring. Goldfish are about 20 cents each (while the grid is up, anyway). The mosquito-control fish will contribute to the microcosm of your pond. Mosquitofish in particular breed well and give your meat fish a natural food source.

I would also consider putting a frog population in the pond. The resulting pollywogs are a great food source for your fish, as are the frogs themselves – especially the smaller varieties.

Some people raise fish farms in above-ground swimming pools, or even children's inflatable pools inside a greenhouse. This is a high-maintenance operation, however, and could be considered somewhat cruel to the fish being raised. The fish must be constantly fed, the pools must be constantly cleaned, and they must be aerated continually. Personally, I think such a thing violates the spirit of self-sufficiency. A pond on your land is low-maintenance and much more pleasing to the senses.

Locate a natural low point on your land to dig the pond hole, and map it out first. Don't put the pond underneath a large tree, but do try to give it some natural shelter from wind. You may also want to drill a shallow well here in order to fill it and maintain the water level (see my book *Harvesting H2o* for well drilling techniques). Keep in mind you need a deep area that will go 8 to 12 feet down in order for the fish to have a place to retreat to during extreme weather. You also want to have ledges and different depth areas in various locations, including some shallow areas for growing emergent plants and where small fish can have shelter. This is not like the topography of a swimming pool. Fish also need structure of some type, so put in a few large rocks and an old tree trunk. Catfish reproduce in hollow caves, so dig some of those in. Think like a fish when designing your pond.

Once the hole is dug, you need to seal the very bottom area to prevent your pond water from seeping right back into the ground. In my opinion, the best way to do this is with *bentonite clay*. You will need a 50-pound bag for every 25 square feet to make a one-inch level of clay on the bottom, which is ideal. Don't seal the sides or the higher ledges, just the deep bottom area. You will want to have some aquatic plants growing

up from the sides and ledges. You will still get some water seepage, so expect to add water to the pond every now and then, which is why having a groundwater well nearby is a good idea. Rains will naturally help with this process if the pond is at a low point on your land. As an alternative to bentonite, you might just cement the very bottom area of the pond. Some people use plastic liners for sealing their pond. In fact, both plastic and sheet metal lining is sold for making fish pond bottoms. Both should be buried if used. Metal surfaces should not come into direct contact with your pond water, and I would expect the plastic liners to wear and puncture at some point. I would go with bentonite or cement.

Have your water tested before filling the pond. If the pH is too far away from 7, you will need to chemically adjust it before planting your fish.

Plants help oxygenate the water naturally, and encourage the microcosm development of your pond. Hornwort and elodea are good submerged plants to put in the ledges and depressions, and maybe along sloping sides. In the shallows and along the outer edges, you need some emergent plants such as cattail, tule, pickerelweed, wapato, or wild rice if you live in a cool climate (which has the extra advantage of providing an additional grain source). It should be noted that cattail stalks have good fiber for making cordage out of.

There are two other plants I would seriously consider growing in my fish pond. The first is watercress. This is a wonderful salad green that will grow like weeds along the shoreline of almost any water source, as it is an emergent plant. The drawback to watercress is that it grows so fast it can take over the entire pond if you do not actively control it. You should, of course, actively control it and have watercress salads with dinner every night. What you don't eat can be feed to your rabbits, chickens, and goats. The other plant I would definitely grow in my fish pond would be either duckweed or water fern. These are both free-floating plants that display a single leaf floating on the surface of the pond, providing cover for small fish and a playground for your frogs. Both these plants make excellent chicken and duck feed when gathered.

Insects will be attracted to your pond and reproduce there, providing the fish with a natural food source. The fish themselves will reproduce and provide another natural food source, as will the mosquito-control fish and frogs. However, you will get more meat production from your pond if you also endeavor to actively feed the fish. This can be done by simply digging for worms and throwing them in the pond regularly. Any time you discover a mess of insects somewhere (for example, a fire ant hill or a grasshopper invasion) consider capturing a bunch and tossing them into the pond. Take care of your fish pond and it will take care of you.

Survival Trapping Techniques

You can put meat on your table by trapping game. As an off-grid homesteader, the practical way to go about this is by learning to set snares, or by making deadfall or cage traps. Metal spring traps are dangerous, require maintenance, and have a limited shelf life. Those are not attractive attributes for survival-minded homesteaders. Making your own traps is a lot more satisfying, and offers more long-term security.

Snares

Small game can be trapped in snares; especially rabbits, squirrels, and ground fowl such as quail and grouse. Larger snares can be set targeting bigger game as well, but overall you are going to be more productive using your materials to set multiple smaller snares targeting small game.

A snare is essentially a noose, or lasso, which tightens around the animal which comes into contact with it. There are two types of snares: those with a spring trigger, and those without. Non-triggered snares are normally only set for rabbits. Snares with a trigger mechanism are set under pressure and lift the animal up into the air when sprung. The spring which tightens the noose is usually a bent over sapling or a branch from a brush, creating tension. It is tied to a piece of wood that is “notched” into a stake in the ground, which slides out when the noose is pulled, releasing the spring of the sapling or bush branch back into its upright position.

Snares should only be set along actively used animal trails. If you have small game activity in the woods around your land, or even on your land, you will know where that is. If not, look around in your local woods for the telltale signs of small animals: dung, scratched up tree trunks, naturally-matted trails, footprints, and holes in the ground.

The noose must be constructed from a thin cord of some type. It must be strong enough not to break when pulled on, and easily slip to tighten when tied into a noose. Most snare-trappers use thin wire for their nooses, which can come from many sources including electrical components. Strong dental floss and fishing line will also work. Of course, as a good survivalist, you should want to make them from your own naturally-produced thin cordage (see the fishing chapter); the same stuff you use for your fishing line. Just work the cordage until the noose tightens easily. To make a noose, tie a loop in one end and run the other end of the cord through the loop. Stinging nettle or bramble cordage is excellent for this purpose. You need about 20 inches of cordage for each noose.

Besides the noose, you need a tie-line. For a static (non-triggered) snare you only need about 18 inches of additional line, and actually could just use a longer piece of cordage so it is all one big lasso. Setting a static snare is easy; just tie the end of the tie-line to a strong branch or tree trunk, and hang the open noose over an animal trail by suspending it using the tops of plants, twigs from brush, grasses, or whatever is there. Make sure the noose stays open and will stay in place when the wind picks up a little. Static snares work well for rabbits because rabbits will come hopping through and their front legs will catch the bottom of the noose, which naturally positions the top

of the noose behind their neck. It will then tighten with another hop and when the rabbit feels it, it will panic, run, and choke itself to death in the noose fairly quickly.

A spring-triggered snare is more complicated, but will catch more types of game (including game birds) and is pretty cool to set up. You must set the trap next to a sapling tree or bush with high, flexible branches. For this trap, you need two pieces of L-shaped wood, one that is sharp on the straight end and is staked into the ground, and the other with a notch in the straight end for tying a line to. The notched piece of wood is tied on a piece of cordage which is tied to the bent-over sapling. The stake in the ground needs to have the L-bend facing the opposite direction of the sapling, so the other L-shaped wood can hook onto it and not be pulled away by the sapling pressure. The noose is tied by a short line to the notched stake that is tied to the sapling, and is held open by hooking the top to natural brush near the ground. When an animal comes through the noose, it will begin to tighten as with the static snare, but then the noose cord will pull the L-hook free from the stake and the game will be sprung up in the air to hang, usually killing it instantly.

A spring-triggered snare can also be used for unmonitored fishing. Tie the fishing line where the noose would usually go and try to set it with a “hair trigger” so any fish nibbling on the bait will set it off. This is a great way to automatically set the hook on a bigger fish.

Deadfall Traps

A deadfall is a simple trap that you may have already experimented with as a child. A heavy weight (such as a big, flat-bottomed rock) is held up by a stick, and a piece of bait is tied to the stick. When an animal comes along and fools with the bait, the stick pulls out and the weight falls on the critter and traps it, hopefully killing it instantly. However, often the trap won't trigger because the bait can be eaten without pulling on the string. To remedy that, you can put the bait on an additional stick that is attached to a delicate stick-support system holding up the rock. You want to achieve a natural balance that is easy to upset. One good way to do this is with two long sticks and one short stick. The two long sticks make a tent shape with one outside the rock and one braced against the rock holding it up, but the long stick under the rock does not touch the ground – instead, it has the bait stuck on the end of it, and rests on the short stick that is stuck in the ground at an opposing angle. It can be tricky to get set right, so you may have to play with the balance for a bit. Tip: An apple surrounded by fish scraps makes very effective possum bait, and possum meat is quite edible.

Cage Traps

This one I am certain we have all done as a child (probably against our parents' wishes) to temporarily trap chipmunks in the campground. A wooden box is held up by a stick with a string tied to a nut. So simple, it is child's play. I got news for you: it still works, and big squirrels are supposed to be pretty good eating.

A lighter version of this kind of cage trap made from sticks and cordage, fashioned in the shape of a pyramid, is particularly effective for trapping doves – especially if you set out feed for the doves in the same spot for several consecutive days before setting the trap. Dove breast meat is delicious (see the dove taco recipe at the end of this book) but you need to catch a bunch of them.

A more sophisticated cage trap involves a complete box made out of wood or wire, or perhaps a wooden frame and chicken wire. It has a door on one end that is hinged on the top. The door is held open by a long stick or rod along the top of the inside of the cage, which slides in place and is hooked to hold the lid open. When the end of the rod inside the cage is pulled down, the other end lifts up, unhooking the door causing it to fall shut. To get the inside end of the rod to pull down tie some bait on a string to the very end of it.

Closed-end Bird Traps

Birds cannot walk backwards. You can trap them by getting them to walk into an enclosed corridor that keeps getting narrower until it is too small for them to turn around. There they will be forced to stay. Lead them into the tunnel of no return with a trail of bait.

Quail can be baited with common chicken scratch. Grouse, partridges, and pheasant can be baited with dried corn kernels.

Survival Hunting Techniques

Survival hunting does not involve guns. If you are one of those preppers who has a stockade of rifles and more ammo than some small countries have, good for you. In a post-apocalyptic society, however, the ammo will all run out some day. Perhaps your grandchildren will eventually need to learn survival hunting techniques. Hunting without guns is accomplished by either throwing or launching a projectile of some type, and takes considerable practice before you can hit anything.

Throwing Projectiles

Rocks: Believe it or not, throwing rocks at small game can be an effective hunting tactic. If you are raising boys, you will have no problems in encouraging them to learn this method and then sending them out into the brush to hunt for dinner. They just need some practice in choosing the right kinds of rocks, becoming accurate, finding game, and sneaking up on it close enough to get a good shot off. Most likely, they will become quite good at all of this rather quickly.

Sticks: In Australia, Africa, and South America, people still hunt game with throwing sticks. We all know about boomerangs, and most of us probably had one as a kid. Becoming accurate with one from thirty yards away may or may not be something you are dedicated enough to accomplish. Boomerangs do not have to be pretty – in fact, any thin, strong, slightly-bent piece of hardwood will suffice.

An alternative to a boomerang may be more practical. African throwing sticks are typically straight with a heavy, bulbous end, somewhat resembling a hammer in form. A little practice and you can become proficient throwing one up to thirty feet or so. The stick spinning in the air helps deliver a more powerful blow to the target. All you need to do is stun the critter long enough to run up and grab it.

Spears: I tried to throw spears at the Renaissance fair and found it difficult, but my friend picked one up and threw it straight and hit the bulls-eye on his first try (he won a tankard for it). It's all about where you hold the spear, so this is simply a matter of practice. Spears can be made from any straight piece of hardwood, and can be nothing more than a big long stick with a sharpened end. Or, you can fasten a tip such as a sharpened rock to the end. Attaching some feathers or plant fibers to the rear end may help with steadying the flight. Beyond that, getting the thing to fly straight and becoming accurate will be a personal training exercise as you spend time with your own spear. Spears can be used to bring down larger game such as wild boar, antelope, and deer. Learning to lie in wait for animals to wander up close, waiting for them to graze, and then being stealthy enough to get the shot off is the most difficult part of spear hunting.

Launching Projectiles

Slings: A sling is a very powerful ancient weapon and should not be taken lightly. After all, David brought down Goliath with one, remember? And he was just a shepherd boy at the time. We are not talking about *slingshots* here, which are another effective hunting weapon but require industrial-produced rubber in their construction.

A sling can be made out of any cloth, or even natural cordage and plant leaves. It has a pocket in the middle which holds a rock and two equal length cords that are maybe 18 inches in length. The slinger swings the rock in the pocket around a few times in a circular motion over his head or off one side of his body, and then releases one of the cords, causing the rock to launch with a tremendous force. This takes a lot of practice and can be quite dangerous to both you and any bystanders, so practice off by yourself somewhere – and be careful.

Blowguns: You don't need poison-tipped darts for this – in fact, I would highly recommend against such a thing. You do need a long straight hollow tube for the gun, such as a bamboo stalk. It should be at least five feet in length for accuracy. The darts can be fashioned from anything straight and sharp, including porcupine quills, but to be large enough to deliver a kill shot to small game (without poison) they should be made of sharp, wooden sticks. I have seen darts made out of standard disposable shish kabob skewers you buy at the grocery store, and they are the perfect size. You need to glue feathers or stringy, feathery plant material all around the rear inch or two of the darts to give flight stability and seal them somewhat in the blowgun shaft. The shish kabob darts I saw used white *downy plant* flower material, which was glued on using pine-tree sap. You can get extremely accurate with a blowgun very quickly. Shoot the darts into the neck of small game for the kill shot.

Bow and Arrow: This is the ultimate survival weapon, and making them is not quite as hard as it looks (well, a basic one, anyway). The bow is made from a sapling trunk no more than 3 inches in diameter. Almost any kind of wood will work, but the best saplings for bows are hickory, honey locust, mahogany, juniper, Osage orange, yew, and ash. Cut the sapling trunk into a good 5 feet of length for the bow. The best time for harvesting the wood is in late winter, when there is less sap on the trees. Store the harvested sapling trunk indoors for one year before using it to make a bow.

After aging the sapling, strip off the bark and split it in half. Use each half to carve a bow from. The bow should be flat when finished, and shaped in a semi-circle as much as possible. Think wide and thin. Keep the very middle part round and shape it to fit your grip, as this is the handle part. It should gradually shape out from the center into being flat. Put notches an inch or so away from the ends on both sides for tying your bow string to. You can wrap the handle area in cloth, plant leaves, or leather if it feels better to your hands.

Use some of your home made nettle or bramble cordage for the string (fishing line works as well, or any strong string – for an alternative survivalist material, you can use the sinew from the hind leg of a deer or elk). You are going to tie the string to the opposite side of the natural bend in your bow, and pull it back to bend the bow in the opposite direction. This is when you test the bow for even bending. One side will probably bend unevenly, so carve down the side that resists more until both sides bend back evenly. Measure your cord to a length you need to bend the bow backwards into a good, familiar bow shape and tie it on there, putting natural pressure on the bow with the backwards bend. Animal fat can now be applied to the wood and allowed to dry near a fire for the finish, if a stained finish is desired.

Make arrows from any hardwood source – you just need them to be somewhat straight. They can be thin branches, or split from larger branches of the same kind of

sapling you made the bow from. If sapling wood is used, it should also be aged and dried. Arrow shafts should be about a third of an inch in diameter and two feet long. The tips of the arrows can simply be sharpened wood for small game. For deer and larger game, you will need to make arrowheads out of flat rocks, shaping them and sharpening them and notching them. Notch the arrow shaft ends and tie the heads on using your thinnest cordage, then apply some tree sap to the cordage wrapping and set by the fire to dry. Near the other end of the shaft, glue on three feathers with sap. Evenly space them on the circumference of the shaft. Just about any feathers will work, but trim them to be the same size. Lay them flat against the shaft. Leave enough space behind the feathers on the end of the shaft to hold the arrow for shooting.

It may not be the prettiest bow and arrow, but what I have just instructed you to build will work, assuming the bow doesn't break. If it does, build another one from the other half of the sapling trunk and do a better job this time. Eventually, you will get the hang of making your own archery equipment. You will need to practice shooting of course, and go easy at first until you break the bow in. Follow animal tracks and stalk down deer, or wait in the meadows in the evening when they come out. The kill shot is in the high chest, just below the neck, or just above the shoulder from a side shot.

You can certainly make better quality arrow flights, and fine-tune your bow-making skills to where you are making masterpieces your neighbors will trade high quantities of goods for. While the grid is still up, I would spend some time watching survivalist bow making videos on YouTube.

Foraging

Finding edible food in the wild is a hobby for many rural residents. You need to be able to safely identify the plants you pick. Be aware that there are many poisonous plants and berries growing out there! Never pick wild mushrooms unless you are an expert and know what you are doing. Become familiar with poison oak and poison ivy so you can avoid contact with them.

What kind of food you can reliably forage depends on the season and the area you live in, so find out what you have locally and learn to identify it. In the Midwest, you can take guided wild mushrooming picking tours and learn from an expert exactly how to do it. Your neighbors can probably give you tips on local foraging. Rural family-owned grocery stores may be able to offer good advice as well. Here are some ideas to get you started in the right direction.

Clams and Mussels: Obviously, you must live coastally to get these shellfish. Clams are dug using pitchforks while standing knee-high in the surf at the beach. Mussels are harvested from rocks in tide pools, or from rocky jetties at low tide.

Crayfish: These look like little mini-lobsters and live in freshwater lakes, ponds, creeks, swamps, and rivers everywhere. They are extremely edible; the meat is in the tail. Some places are more abundant with them than others. In the south, they are all over the place. My wife once entered a crawfish eating contest at a local Cajun festival. She didn't win. Cook crayfish until they turn red.

Dandelions: Grow wild everywhere when the ground is not covered with snow, and the leaves are good in salads. We actually pay for these nowadays in grocery stores in bags of "mixed" salad greens. Add them to your watercress salads!

Wild Asparagus: Grows wild everywhere in North America and Western Europe. Well worth learning to identify. The stalks are thinner than commercial asparagus. Asparagus hunts should be conducted throughout the spring and early summer. You will have the best luck along roadsides, railroad tracks, and telephone pole lines. The best plants for harvesting will be between 4 and 7 feet tall.

Wild Sweet Peas: Grow up in the same places wild asparagus grows in the early spring. This plant is best known for its flowers, but produces edible pea pods in the late spring through early summer.

Wild Strawberries: Grow wild everywhere in North America and Western Europe from spring to mid-summer. The fruit is much smaller than commercial strawberries, usually not bigger than a nickel is size. The fruit is not as sweet either, but still very healthy. It loves to grow alongside grasses and – unfortunately – next to poison ivy.

Other Wild Berries: Grow on low creeping vines and brambles near rivers everywhere in North America, but are more predominate in northern areas and cooler climates. Learn to identify the species in your area. In Idaho, Montana, and Wyoming, you haven't lived until you have eaten wild huckleberries.

Rose Hips: Pollinated wild rose plants will produce this fruit in the late summer through fall. Can be eaten raw (be careful of the hairs and seeds) or made into jam or

jelly. High in vitamin C.

Wild Nuts: The mid-western states in the USA have a long tradition of wild nut foraging in the autumn, especially for black walnuts and hickory nuts. Farther east and south look for beechnuts. Out west, pine nuts can be gathered during the same season. In Texas, wild pecans are everywhere in the fall.

Pawpaw: Native to the Midwestern USA, these wonderful wild fruit trees can now be found throughout Canada and the Great Plains, as far south as Texas, and all the way to the east coast. The fruit ripens in the fall and is the largest edible fruit indigenous to the USA.

Prickly Pear and Barrel Cactus: These cactuses grow in desert areas throughout the USA. They are the only cactus varieties which produce edible fruits, so learn to identify them. The fruits are delicious, rich in vitamin C, and ripen in the late summer through early winter.

Ramps and Leeks: Small wild onions that are highly appreciated in the south, especially in the Carolinas and Virginias. They are ripe in mid-spring.

Fiddlehead Ferns: Grow wild in the Northeast USA and Canada. The little curly tips of the new growth are considered a delicacy.

Amaranth, Husk Tomatoes, and Jerusalem Artichokes: All grow wild in the southwest region of the USA. Ripe for picking in the fall.

Cattails: Use the outer fibers from the stalks to make cordage, but then eat the inner soft core (after rinsing) either raw or cooked. Cattail cores are an excellent source of starchy carbohydrates, and thus a good survival plant. Anywhere there is a lake or a pond, you can probably find cattails.

Lamb's Quarters: Looks like a common weed and grows wild everywhere. The leaves actually taste like spinach and are almost as nutritious. The seeds are edible as well, and make a good snack. There is a field near my house that becomes overgrown with them every spring. Sometimes I see a group of Asian ladies out there with baskets picking them.

Watercress: Can be found growing wild alongside many ponds and lakes. Take a bunch home, transplant some to your fish pond, and eat the rest.

Wild Rice: May or may not be worth the effort. Sometimes, large colonies can be found growing in streams or lakes. You may need a small boat to get to it, however.

Making Flour, Bread, and Pasta

Flour is necessary for making bread and pasta. To make flour, dry grain seeds are simply ground into powder. The resulting powder is flour. Nuts can also be ground into flour, but nut flour cannot be used for baking or making pasta, other than as an additive (in small ratios). Not all grain makes usable all-purpose flour, either. Flour from some of the grains I recommended for homesteaders should only be mixed with all-purpose flour, never used alone (especially for baking).

The first thing we need to talk about, however, is corn. There are several powders that can be made from corn. They are not all the same thing, and have different uses in the kitchen. To make matters worse, in the UK these terms are used differently than in the US. So, let's get our definitions straight:

Cornmeal: Coarsely-ground dry corn kernels. This is the same thing as corn flour, only not as fine of a powder. It is used to make corn-specialty items such as cornbread.

Corn flour: A finer, powdery flour ground from dry corn kernels. It is used to make corn tortillas.

Corn starch: This is something different. Only the very inner white endosperm of the corn is ground up, which is the starch source in corn. Making corn starch means separating the inner endosperm from the outer hull and also the inner germ, which is a rather impractical notion for backyard homesteaders. Instead, I recommend making cooking starch from potatoes.

Make Your Own Potato Starch

Peel a few potatoes and finely dice them – or, better yet, grate them with a cheese grater. Place the small potato pieces in a large bowl and cover with water. Let it sit for an hour. The water will become cloudy from starch. Take a pestle and smash/squeeze the potato pieces a little more to extract as much starch as possible. Strain out the solids. What you have left is starch-water, which will be a little thin to conveniently use, so set the bowl near a fire or in a warm, sunny location and wait for evaporation to condense the starch-water. If you prefer, you can let all the water evaporate and will be left with the starch in a rough powder form, which can then be ground to a fine powder. Having the dry form of potato starch on hand will allow you to match it perfectly in recipes that call for food starch (usually corn starch).

Grinding Flour

Most people grind flour using a coffee grinder, food processor, or high-speed blender. Since we are survivalists, I suggest using a good old fashioned manual coffee grinder, or a manual grain mill set very tightly (some have flour settings). If you really want to get nostalgic, you can always grind flour with a mortar and pestle like they did in ancient times. Be prepared for a lot of work and sore hands if you do that.

You can make oat flour from your rolled (flaked) oats. Since that is the best way to store oats, I recommend you roll all your oats just after harvesting and then make flour out of what you need, as you need it.

Grains for All-Purpose Flour

- Oats
- Buckwheat
- Sorghum (needs a small amount of potato starch and oil added before using as all-purpose flour)
- Wheat

Grains to Mix with All-Purpose Flour

- Quinoa
- Amaranth
- Millet
- Barley

Mix these grains at about a 50/50 ratio with all-purpose flour for baking or making pasta. If push comes to shove, you can bake with these grains without mixing them, but the resulting bread will be very thick, hard, and/or crumbly. Some cultures have subsisted on those kinds of hard breads for thousands of years, however.

Baking Bread

Bread is made by mixing flour and water into a dough and baking it. That is really all there is to it at the basic, essential level. Simple *unleavened* bread will not rise and be flat like a cracker. Many people add a little oil to the dough as well. The more oil you use, the thicker and richer the unleavened bread will be. You can use all oil and no water to make the richest possible product. There are many references to this type of bread being made in the Bible.

To make the normal type of bread we are all used to, you must have a yeast culture. Fortunately, this is easy to acquire. Yeast is everywhere in nature, but gathers in harvestable quantities on the skins of fruits, grains, and vegetables – especially grapes, apples, potatoes, and tomatoes. The yeast will still be there, and still be alive, even if the fruit has been dried.

To make a yeast culture: Fill a canning jar about half full of apple pieces, pear pieces, grapes, raisins, tomato pieces, potato chunks, or dried tomatoes – or any combination thereof. If you don't have any of the above, yeast is also naturally present on grains, so you can just use a couple tablespoons of flour. If you really want to give it a kick-start, add a tablespoon of sugar or your homemade molasses as well. Fill the jar up to about $\frac{3}{4}$ full with warm water, and set the lid on top without tightening it (air must be able to escape or you will have a live hand grenade). You now have a yeast starter. In 3-5 days, depending on the weather and what yeast source you used, it should be visibly fermenting, just bubbling away. In a few more days, the bubbling will stop and there will be a layer of sediment forming on the bottom of the jar. The solids and most of the water can then be discarded. First, chill the jar to get the rest of the yeast to fall down into the sediment. Gently pour off the top water with the leftover fruit solids, down to a level a few of inches above the sediment. What remains is a liquid

yeast culture. The lid can now be sealed on the jar, and it should be kept as cool as possible without freezing it.

Dry, powdered yeast can also be made from the liquid yeast culture. Pour it out on a dry, non-absorbent surface (such as wax paper inside a shallow pan) and evaporate off the water. Eventually, only a chunky, dry yeast cake will remain, which can then be ground into a coarse powder. The resulting powder is the familiar dry yeast you are probably used to baking with.

Bread Recipe Using Liquid Yeast

Let the liquid yeast jar slowly warm up to room temperature and then shake and swirl the jar to mix it all up into a cloudy liquid. Mix an even ratio of flour to yeast-water; for example, mix 3 ounces of yeast-water with 3 ounces of flour – and add a pinch of salt (salt is important for controlling the fermentation of the dough). Knead the resulting dough until it is uniform; then place it in a pan, cover, and let it sit out overnight. By morning, the dough will have fermented and risen to 2-3 times in size and be ready for baking.

Before you bake the bread, however, harvest a small handful of the fermented dough and keep it in a sealed container in a cool place, chilled if possible. Bake the rest of the dough at 450° Fahrenheit for 30-40 minutes, and you will have a loaf of wonderful, homemade bread.

Now, bake another loaf within a week and you won't need another yeast starter. Just mix the flour evenly with plain water and a pinch of salt; then knead in the saved fermented dough from the last batch. This bit of dough is known as *leaven*. A little leaven leavens the whole loaf! Let the dough sit out overnight as usual, and the next morning save a bit of fermented dough again. As long as you keep baking a new loaf of bread within a week, you will never need another liquid yeast starter.

Bread Recipe Using Dry Yeast

The process is the same, except you will be starting with plain warm water and adding the dry yeast first, about a tablespoon. Swirl the jar so the yeast mixes up in the warm water and let it sit for about an hour to wake up the yeast before mixing with the flour and salt.

Making Pasta

Pasta is essentially dough formed by mixing flour with eggs instead of water. Add a little goat milk, salt, and oil to the dough for best results. Here is a wonderful recipe for homemade pasta:

- **3 eggs** (duck or chicken)
- **2 cups of flour** (for interesting pasta, use 50% all-purpose flour and 50% of one of the mixing grains)
- **Pinch of salt** (or a smudge of salty black paste from hickory)
- **1 tablespoon of goat milk**
- **1 teaspoon of oil** (nut oil is fine)

Whisk everything except the flour in a bowl. Have the flour in a pile on a cutting board and make an indentation in the mound, like a volcano. Pour the beaten egg mixture into the depression in the mound. "Fold in" the flour from one side to cover the egg mixture, and begin kneading, gently at first. Keep kneading the dough until it is uniform and feels consistent.

Lightly flour the outside of the finished dough ball and then flatten it to about 1/8 inch thick, using a rolling pin if you like. Now cut it into thin strips with a large kitchen knife. Hang the pasta strips on pegs and let dry for three hours. You have fresh pasta, much better than any you can buy in a grocery store. It can now be sealed and stored in a cool place (chilled if possible) for up to 5 days before cooking.

Cornbread Recipe

Cornbread is made without yeast and is a good way to use your extra buttermilk after making goat milk butter. In a large bowl, add one cup each of cornmeal and all-purpose flour, then mix in:

- **5 tablespoons goat milk butter**
- **1 ½ cups of fresh goat buttermilk**
- **1 tablespoon dry sugar or 3 tablespoons liquid molasses**
- **Pinch of salt or a dab of black hickory salt-paste**
- **2 eggs** (duck or chicken)

Mix it well. Fill a baking pan with the dough and bake at 425° Fahrenheit for about 20-25 minutes, or until golden brown.

Canning and Food Storage

Vegetables and fruits are seasonal, so they need to be preserved if you wish to enjoy them during the off-season. There are three methods of accomplishing this: canning, pickling, and dehydrating (drying).

Fruits and tomatoes can be safely canned by using the hot water bath method below. This is because fruits and vegetables are naturally high in acid, which results in a high enough pH inside the canning jar to prevent harmful bacteria growth.

Vegetables and potatoes, however, must be pickled or pressure-canned. They do not contain enough acid to prevent bacterial growth, and high enough temperatures to sterilize the produce cannot be attained without a pressure canner. Please do not disregard this advice. Home canners have died from ignoring it. The hot-water bath method for canning vegetables (other than tomatoes) is now known to be unsafe and carries the risk of botulism growth.

Hot Water Bath Canning

Good for fruits and tomatoes. What you are doing here is packing the canning jar with fruit or tomatoes, filling it up with boiling water and/or a sugary syrup mix, sealing the lids on the jars, lowering the jars into a large pot so they are completely submerged, and boiling them for about 45 minutes. That really is all there is to hot water bath canning, except for the many available canning recipes tailored for individual fruits (and different types of preserves), which are a bit beyond the scope of this book. Below is a basic procedure that will work for tomatoes and fruit, which can then be tweaked however you like, or adjusted to specific recipes you find from various sources.

Step 1: Prepare the fruit. Wash it, clean it, remove the pits from cherries, and then drop into a pot of boiling water for 5 minutes to stop the enzyme activity. Tomatoes, peaches, and other soft fruits can easily be de-skinned by transferring them from the boiling water right into an ice-water bath – the skins will then peel right off.

Step 2: Prepare the canning liquid. For tomatoes, just add a tablespoon of lemon or lime juice to the canning jar before packing it. You can also add a bit of salt if you like. For fruit, you need to use sugar-water as the canning fluid, which can be fruit juice – fresh apple or grape juice works great – or a mixture of about 1/3 sugar to 2/3 water (if using liquid molasses go half and half). Boil the canning liquid, which is just water if you are canning tomatoes.

Step 3: Pack clean, sanitized, hot canning jars with the fruit, leaving about an inch of headspace in the jar. The jars can be cleaned and sanitized in a dishwasher with a hot dry cycle, or can be brought to a boil inside the large canning pot. Pack the fruit while the jars are still hot.

Step 4: Fill the jars with the still-boiling canning fluid, leaving an inch of headspace. This is why the jars should still be a little hot, to avoid an extreme temperature change at this step, which may cause the jars to break. If there are any air bubbles in the jars after adding the canning fluid, stir them out with a plastic kitchen tool. Seal lids on the

canning jars (the lids must also be clean and sanitized), but do not over-tighten them – barely snug is what you want.

Step 5: Lower the jars into the canning pot using tongs or heavy mitts. The canning pot should have hot water in it already, close to 180° Fahrenheit. If the pot is half full before the jars are lowered, after lowering the jars the pot should be about $\frac{3}{4}$ full, covering the jars completely. If the jars are not completely submerged, add more water until they are.

Step 6: Bring the canning pot to a boil and maintain the boil for 45 minutes. Turn off the heat, let the contents cool some, remove the jars, let them cool to room temperature, and store.

Making Berry Preserves

Preserves are boiled with sugar water in their making, so they can be poured directly into the hot canning jar from the stove before sealing and boiling the jars in steps 5 and 6, above. There are two ways of making preserves; with or without pectin. Pectin can be made from boiling fruit in water with a little lemon juice until the liquid reduces to thick syrup. Pectin thickens the preserves and makes them more flavorful. To make preserves without pectin, you just need to boil them a lot longer to get the thick consistency you need.

To make pectin from apples: Combine 3 pounds of cleaned, sliced apples with 4 cups of water and 3 tablespoons of lemon juice. Boil for 40 minutes until the mixture reduces by half. Strain out the apple solids and boil the juice for another 20 minutes until it thickens. Pour into canning jars, seal, let cool, and store. Pectin from other fruit can be made in roughly the same manner.

To make berry preserves: Start with 8 cups of whole, fresh, washed berries. Smash them all up in a cooking pot with a pestle or something, and add a cup of your homemade pectin (if you are using pectin). Heat the mashed berries slowly to a boil, stirring often to prevent burning. When the mixture is at a boiling point, add 3-4 cups of dry sugar or 5-6 cups of your homemade liquid molasses. Bring back to a boil. If you used pectin, you are finished boiling in one more minute. If not, you may have to boil for 45 minutes to reduce to a good jam thickness. When finished boiling, skim the foam off the top with a spoon and fill your hot canning jars with your preserves, leaving about an inch of headspace. Continue canning from step 5, above.

Pressure Canning

Potatoes and vegetables must be pressure-canned in order to be safe. Vegetables need no canning fluid mix other than boiling water, and they do not need a quick boil before canning to stop the enzyme activity. Some people do like to add a pinch of salt, however. So, just clean and cut the vegetables and pack the hot canning jars, then fill with boiling water to about an inch below the top – the water should cover all the vegetables. If there are any air bubbles in the jars, stir them out with a plastic kitchen tool. Seal the lids on, and then cook the jars in the pressure canner.

Pressure canners work a little differently than just boiling the jars inside a pot. Specifically, the jars are not fully submerged in water, as steam is the primary heating element used (which is why pressure canners are also sometimes referred to as *steam canners*). They have racks built inside for holding the canning jars. Get 3-4

inches of water boiling in the pressure canner, lower the sealed jars into place, and twist the lid on the pressure canner into place, using mitts. Turn the heat on high now, but leave the vent open for 5-10 minutes. Then close the vent and watch the gauge. When it gets to 10 pounds, maintain that pressure and cook for 30 minutes. Turn off the heat, let it all cool down for a while, then move the jars into storage.

Meats can also be stored by pressure-canning, but should be trimmed of all fat and cooked first. Cook the meat pieces by simmering them in a saucepan with water. Boil the resulting broth and use that for the canning fluid (add more water if necessary).

Please note you cannot use a pressure cooker for pressure canning. The required pressure cannot be maintained (and many pressure cookers do not even have gauges). Invest in a good pressure canner now, before the grid goes down, and it should last for several generations.

Pickling

If you find yourself living off the grid without a pressure canner, you can still preserve vegetables by pickling them. This is safe because the vinegar brine will bring the acidity level in the jar up to the proper pH to prevent bacterial growth.

Pickling is simply packing a jar full of vegetables and spices, then filling the jar with a boiling vinegar brine and sealing the jar. It's that simple, but there are a few things to keep in mind.

- Brine is a mixture of salt, water, and vinegar. Any vinegar will do, but the minimum safe dilution ration is 1:1. In other words, use at least 50% vinegar to be safe. The more vinegar you use, however, the more sour the pickled vegetables will be.
- Use 1 tablespoon of sea salt (or about 1 ½ tablespoons of homemade hickory smudge-salt) for about every 1 ½ cups of brine.
- Boil the brine (vinegar, water, and salt) for 10-15 minutes
- To reduce sourness, add some sugar to the pickling jar. Experiment until you find the desired level, but I would suggest starting with 1 tablespoon of dry sugar or 2 tablespoons of homemade liquid molasses to a quart-sized jar for a 1:1 vinegar ratio. Just add the sugar to the picking spices.
- First, put the sugar and spices in the jar, before packing it with vegetables. Classic pickling spices include peppercorns, dill, and mustard seed; but you can use any mix of your favorite homegrown herbs including garlic and foraged wild leeks.
- Pack the jar full, fill it with the still-boiling brine solution, and then immediately screw on the lid, using a mitts. Let cool and move into storage.

Drying Fruit

If you do not own a dehydrator, there are two other ways you can dry your own fruit. The first would be by simply putting cut-up fruit pieces in a baking pan out in the sun, but that will only work on hot summer days where there is very low humidity, so you probably need to live in the desert for that option. Much more practical for most of us is the process of oven-drying. Put the oven on the very lowest setting, no more than 145° Fahrenheit if possible, and set the cut fruit pieces directly on the oven racks (you might need to set a screen over the racks first for smaller pieces of fruit). Leave the

oven door slightly open and check back in 5-6 hours. Store dried fruit in an airtight container at room temperature.

Excellent fruit candidates for drying include: apples, pears, berries, plums, pitted cherries, figs, peaches, apricots, grapes, and even melons.

Making Jerky

Good jerky can be made from fish or larger game, including turkey, deer, goat, antelope, and elk. The procedure is the same as for making dried fruit, except that the meat should be trimmed of all fat and bones and marinated first. Long, thin, lean strips of meat are what you want. Use the best parts of a fish filet. Soak the meat in a marinade of your own concoction (a mixture of oil, citrus juice, and herbs will suffice) and lay them over the racks in your oven. Alternatively, you can droop them over the racks to hang. Put a pan in the bottom of the oven to collect the drippings and keep the oven clean. Jerky will take longer to dry than fruit; put the oven on 145° with the door slightly open and check back in 8-9 hours.

Want to make jerky the cowboy way? Hang it from tree limbs on a hot and windy day. Native Americans laid it out on rocks in the sun to dry (still known as *pemmican-style* jerky to this day). You need dry weather in order to do that, however.

Libations and Vinegar

Some people classify libations as a basic necessity of life, while others would consider them a luxury or even a curse. Most of us, however, consider vinegar to be a near-necessity. Since vinegar is made from libations, you first need to have the libations before you can make the vinegar. So, we may as well drink some of those libations and enjoy ourselves in the meantime. At least, that's the way I see it.

Hard Cider and Apple Wine

Everything in this section also applies to pears. Making hard cider and apple wine is very easy, as long as you have an efficient way of juicing the apples. A modern juicer is the most convenient way to do it, but an apple press works as well. You might be able to make your own apple press with some boards and large C-clamps. However you do it, smash the ripened apples and collect the juice runoff until you have a bucket (or barrel) of fresh juice.

Do nothing now, and you will eventually get a fermented beverage, which may or may not taste good. Apple juice will start fermenting on its own if not stopped. However, you want to stop bacteria and every strain of wild yeast in the area from jumping in on the action. To that end, I recommend culturing up your own natural yeast strain. See the chapter on making flour and bread for instructions, but use an apple or two to make the first starter. When finished, transfer the small canning jar starter to a larger pickling-jar-sized starter by simply adding it to a bigger container of fresh apple juice.

From there, you can add the yeast starter to a large bucket or barrel of apple juice and it will start fermenting right away. You still need to cover the barrel to protect it from bacteria and wild yeast, but do not make it air-tight, as the fermentation gas needs to escape. Some people use plastic wrap for this, or an airlock with a rubber bung from a home-brewing kit stuck into a hole in a bucket lid. Whatever. Get creative.

After a month, you will have hard cider. Drink it, bottle it and cool it, or let it keep fermenting and in another month or two it will be apple wine – or, perhaps, something in between. It's all good. When transferring the fermented beverage to drinking or storage containers, leave the inch or two of yeast sludge at the bottom of the fermenting barrel and just add fresh juice to it for another batch. That yeast will be happy to perk up and ferment the next batch, with just the slightest encouragement from you (stir it up with a sanitized spoon or shaking the barrel).

Making Wine

Making wine from your grapes is almost the same process. Sort your grapes well before juicing them. Pick out the small ones, the discolored ones, the dry ones, the weird ones. Make sure the grapes are ripe and taste sweet. Remove the grapes from the stems and press them or juice them to extract the precious juice. In the old days, they put them in a big tub and squished them with their feet by walking around all over on them. However you do it, you need a way to strain the juice away from the solids afterwards.

Good wine starts from grape juice that has an acid level of about 7. You can measure the acid level with a *titration kit* sold at winemaking and homebrew supply shops. If the acid is low, dilute the grape juice with water until the acid level is about right. Be aware that this will result in a less alcoholic wine, though. If the acid level is too high, stir in sugar (or home-made molasses) until you bring it down to about 7. If you don't have an acid measuring kit, hey – just wing it. They didn't have them in ancient times, either. If the wine is too tart, add sugar to the next batch, and if it is too sweet, dilute the next batch some. Just experiment until you know how to make good wine from your own grapes. You can always make vinegar from any bad batches.

Winemakers add *campden tablets* to the grape juice before fermenting it to stop bacteria and unwanted wild yeast strains. It is a sulfate. Instead, I recommend just bringing the grape juice to a boil first, maybe for one minute, then letting it cool down and adding your own yeast starter (see the hard cider section, above).

Wine ferments for 2-3 months, then needs an additional 2-3 months of aging before it will become good drinking.

Making Vinegar

You can make vinegar from your hard cider or wine. Even if you get a bad batch of libations, you can still use that for making good vinegar. In fact, the very definition of vinegar is spoiled wine or cider (or some other fermented juice).

Your wine and cider will spoil (and re-ferment into vinegar) if kept in a hot place. The hotter the place, the faster the process. The ideal temperature range for intentionally making vinegar is 80-85° Fahrenheit. To make good vinegar, it must be kept from sunlight. Oxygenating the libation while it is re-fermenting greatly helps the process.

Wine shops will sell you a culture of *acetobacter* bacteria for turning wine into vinegar. This is a nice convenience, but not really necessary. You cannot practically culture up a strain of this bacteria at home, as it needs to be isolated in a laboratory.

To make vinegar from your wine or cider, fill a jar about $\frac{3}{4}$ of the way up, put the lid on, and shake the heck out of it. Take the lid off and set the jar in a hot place out of the sun, perhaps next to a stove or fireplace, or in a hot closet in summer. Every day, take a spoon and stir up the liquid to add more oxygen. As long as the heat is maintained, or at least reached for the majority of the day, you will have usable vinegar in 4-6 weeks.

Beer

Oh yes, my favorite libation by miles and miles. Unfortunately, making it from scratch is impractical for the overwhelming majority of homesteaders. A few of you hardcore types might take a shot at it. The primary problem is you need malted barley. The secondary problem is you need a pure yeast strain.

As mentioned in the grain chapter, barley is an inefficient crop. Fortunately, it does grow almost anywhere, so if your land is big enough, go for it. Plant barley right around the time of the last frost and grow it through the summer. Harvest it in the fall as you would buckwheat.

You will then need to *malt* the dried seeds, which means germinating them. Soak them in water for a day and then spread them all out on a large, flat surface protected

from the wind and birds, such as inside a barn or large shed. Mist them with water to keep them moist. In a few days, they will sprout roots. Let the roots get to about a half-inch in length, then kill the germination process by drying it all out again, quickly. A sealed sack inside a clothes dryer will work, or you can lower heat lamps over the bed of grain. When it is dry again, get rid of the dried root pieces by pouring the grain from bucket to bucket outside in a light wind, or in front of a fan.

You now have malted barley, commonly referred to as simply *malt*. The nice thing about making beer from your barley crop is you don't have to remove the husks. You do, however, have to crush the malt – very coarsely, just so the husks crack open. Do not grind it into powder! The grain mill should be set loosely, but the husks do need to crack open to expose the inside of the grain.

Before doing that, however, roast some of the malt over a fire. How dark is up to you, but make sure it gets noticeably darker than the rest of the malt. This will give the beer body and flavor.

Store all your malt in sealed containers in a cool, dry place. Do not crush the malt until you need it for brewing. For a 5-gallon batch of beer, figure on needing 12 pounds of grain. Use 3 pounds of your roasted malt (mixed in to the 12 pounds of total malt) and crush it all together.

You also need hops to make beer. Hops grow almost anywhere in the spring through summer. They are tall-growing vines and need a large trellis support system of some type. They need full sun, lots of watering, and well-composted, well-draining soil. Harvest them in the fall when the hop cones are full, smell wonderful, and stick together for only a moment when you squeeze them. Just a few of the leaves on the hop cone should barely be starting to turn yellowish-brown at harvest time. Dry harvested hops by hanging them on a line for a couple days, or dehydrating them in an oven for a bit – but do not over-dry them! Hops should still be a little sticky after drying them.

Now the fun begins. The first thing to do is soak the crushed malt in a container of 155° water for an hour. That temperature must be kept between 150 and 160° Fahrenheit the entire time. This is called *mashing*. The enzymes in the barley are activated at this temperature and convert the starch into sugar during the mashing process. The liquid then needs to be separated from the grains, and the grains need to be rinsed with hot water to get all the sugar from them, as gently as possible. The best way is to have a spout at the bottom of your mashing vessel, with some kind of screen separating the grain from the spout. Drain the liquid off slowly and add hot water as it drains until you have collected about 6 gallons of total liquid, which is now known as *wort*.

Boil the entire 6 gallons of collected wort for one hour, as quickly as possible. During this time, about a gallon will be evaporated off, so you will end up with 5 gallons of boiled wort. Add 2 ounces of hops at the beginning of the boil. Add 1 ounce of hops 5 minutes before the end of the boil. Strain off the wort from the hops and coagulated muck in the boiling pot into a clean, sanitized fermentation vessel such as a 6 gallon bucket.

Now you must cool the wort as quickly as possible. Give it an ice bath or stick it in a cold stream if you can, otherwise keep spraying the sealed container with a hose until it cools down to be cool enough to touch the outside of the fermentation vessel with your bare hands, without feeling any heat.

Now you need to pitch an active yeast culture. I cringe at the thought of using your fruit-yeast strain to ferment beer, but it might just work out great. If possible, culture up a yeast strain from a homebrew supply store, as you can keep re-harvesting the yeast from each batch of beer to make new starters with, and can even make dry yeast from it to store (see the flour and bread section). You might also be able to culture up yeast from a few bottles of *bottle-conditioned* craft beer.

Seal the fermentation vessel except for an airlock device of some sort, which allows air to exit but not enter. A bent tube in an N-shape with water in the bottom of the curve will work fine, stuck into a stopper of some type. Sanitize everything that comes into contact with the wort first by heat or chemicals.

The airlock will bubble as the beer ferments. In a week, you will have beer – but it will be best in about three weeks. It will be flat at that point, however. You can carbonate it when bottling it (or kegging it) by giving the yeast a little more food; about 2 ounces of your homemade liquid molasses boiled with a pint of water, added to the beer and stirred up, will do the trick. Seal the beer afterwards in bottles or a keg (or what have you). Give it three more weeks now to re-ferment and produce carbonation.

10 Off-Grid Dinner Recipes

Here are ten dinner recipes using the food sources you learned to provide for yourself in this book.

Quinoa Risotto

- 1 cup quinoa or amaranth, rinsed
- 1 tablespoon oil
- 1 ½ cups chopped onion or 2 cups chopped wild leeks
- 2 garlic cloves, minced
- 2 cups of sliced mushrooms
- 1 handful fresh Italian cooking herbs (thyme, oregano, basil, parsley, rosemary; any mix thereof)
- 1 cup homemade wine (apple or grape)

Boil 2 cups of water with some salt added (a teaspoon of homemade hickory-branch black salt smudge is fine). Add grains, reduce heat, and simmer for 15 minutes.

Heat oil in large skillet and sauté onions and garlic until onions are soft. Add mushrooms, spices, and a little of the wine and sauté on low-medium heat until mushrooms are soft, about 5 minutes. Add remainder of wine and continue cooking, stirring often, until liquid reduces and thickens. Remove from heat and mix up with the hot grains.

Serve while hot. If you have wild asparagus on hand, grill or sauté it separately and serve on top of the risotto.

Rabbit Stew

- 3-4 pounds cleaned, cut rabbit meat chunks
- 6 potatoes, chopped
- 6-8 carrots, chopped
- 1 onion, chopped
- 1 teaspoon sea salt (or 1 tablespoon black hickory smudge salt)
- 1-2 homegrown peppers
- 2 bay leaves
- 1 tablespoon dried Italian cooking herbs (thyme, oregano, basil, parsley, rosemary; any mix thereof)
- ½ cup of cider or wine
- ½ cup water

- 2 teaspoons dried potato starch (or 1/4 cup liquid potato starch)

Add all ingredients except potato starch to slow cooker or large pot. Simmer on low for 5-7 hours, and then stir in potato starch to thicken and cook an additional 30 minutes.

Homesteader Lasagna

Make large flat pasta noodles by cutting them wide instead of thin (see flour, bread, and pasta chapter). There will be three layers of noodles in this lasagna.

- 12 large flat pasta noodles
- 10 large ripe tomatoes
- 2 handfuls of soft goat cheese
- 1 handful of powdered pumpkin seed
- 2 tablespoons dried Italian cooking herbs (thyme, oregano, basil, parsley, rosemary; any mix thereof)
- 2 teaspoons sea salt (or 2 tablespoon black hickory smudge salt)
- 2 cups of fresh, large rich greens such as spinach, wild lambs quarters, or collards
- 2 cups sliced squash (summer or winter)
- 1 onion, chopped
- 1 tablespoon oil
- Optional: 1 pound ground game meat (deer, quail, grouse, turkey, antelope, pheasant, or goat)

Boil the noodles *al dente* until just a little soft, about 7-8 minutes. Smash up the tomatoes to make a thin paste and mix in just a little dab of the salt and herbs.

In a large skillet, sauté the chopped onion in the oil until soft. If using ground meat, add it to the softened onions, add a little water, and cook until the meat is no longer pink. Add half the tomato paste to the skillet plus a little salt and cook 10 more minutes until paste thickens (add some potato starch to thicken if desired). Turn off heat.

Spread a thin layer of tomato paste on the bottom of a large square baking pan and then put the first layer of noodles on the bottom. Put the onion/tomato/meat mixture in a layer above the bottom noodles, spreading evenly. Sprinkle half the herbs on top. Use half the goat cheese to spread as the next layer, thinly. Put the fresh greens as the next layer, add half the remaining salt, and then add the second layer of noodles.

Spread the rest of the goat cheese as the next layer over the noodles. Add the sliced squash as the next layer. Add the rest of the herbs and salt on top of the squash. Add the last layer of noodles. Top with the remainder of the tomato paste, and then sprinkle the powdered pumpkin seed on top.

Bake at 350° F for 1 hour. Serve with fresh oat bread and goat milk butter, and a watercress-dandelion salad with oil and vinegar for dressing.

Pulled Chicken Sandwiches

- Cut chicken pieces from one chicken
- 1 cup homemade vinegar
- ½ cup oil (olive or sunflower)
- ½ cup of thin tomato paste
- 1 handful of dried herbs, mix of your favorites

Put everything in a slow cooker or large pot and simmer on low for 5 hours. Remove chicken and remove skin, cut meat away from all bones. Shred the chicken meat by pulling it apart with two forks and put back in pot. Simmer on low for one more hour. Serve on fresh, thick oat or buckwheat bread made from 50% quinoa or amaranth to make the sandwiches. Wedge-cut some potatoes and bake at 425° F for 30 minutes to serve with French fries.

Potatoes Au Gratin

- 3 large potatoes, sliced
- 1 cup heavy goat milk cream
- 1 handful soft goat cheese
- ½ cup goat milk
- 1 tablespoon oat flour or dry potato starch
- 2 cloves garlic, minced
- 2 teaspoons salt (or 2 tablespoons black hickory salt smudge)
- 1 small handful mixture of favorite dry herbs
- 1 teaspoon goat milk butter
- 1 handful powdered pumpkin seeds

Mix all ingredients except potatoes and powdered pumpkin seeds in a bowl, and whisk into a consistent cream. Put the potatoes and the cream mix in layers in a large baking pan. Top with the last of the cream mix, and then sprinkle the powdered pumpkin seeds on top. Bake at 400° F for 30 minutes. Serve with chopped cucumbers and tomatoes drizzled with oil and vinegar in summer, or with a green salad in winter.

Fish Stew

- 2 tablespoons oil
- 1 onion, chopped
- 3 large garlic cloves, minced
- 2 cups fresh Italian cooking herbs (thyme, oregano, basil, parsley; any mix thereof)
- 1 cup of freshly mashed up tomatoes

- 1 carrot, chopped
- 1 potato, diced
- 1 cup wine or cider
- ½ cup water
- 2 pounds fish fillets, cut into small chunks
- 2 teaspoons sea salt (or 2 tablespoon black hickory smudge salt)

Sauté onions and garlic in the oil inside a large pot until onions are soft, then add all other ingredients except fish and simmer on low for 30 minutes. Add fish and simmer on medium for another 20 minutes until fish is done and flaking.

Citrus Roasted Duck

- 2 whole ducks, cleaned and washed
- 2 teaspoons sea salt (or 2 tablespoon black hickory smudge salt)
- 2 small handfuls of mixture of favorite dry herbs
- 1 small handful of goat milk butter
- Juice and rind of 2 lemons, limes, or oranges

Salt and sprinkle herbs on the outside of the ducks. Melt butter in a big pan and brown the ducks on all sides on medium heat. Pour citrus juice in the cavities of the birds and sprinkle the rinds on the outside all over the ducks. Covered and bake at 325° F for 2 hours until tender. Remove meat from bones and plate. Pour gravy from the baking pan over the meat. Serve with sautéed green beans, broccoli, cauliflower, or Brussels sprouts. (Note: If you don't have citrus fruit, substitute 1:1 water-diluted apple juice or oil).

Eggplant Parmesan

- 2 medium eggplants, sliced
- 2 eggs, beaten
- 4 cups homemade bread crumbs (dry oat, sorghum, or buckwheat bread in oven and crumble)
- 3 tablespoons dried Italian cooking herbs (thyme, oregano, basil, parsley, rosemary; any mix thereof)
- 4 cups mashed up tomatoes
- 2 cups goat cheese
- 1 handful of powdered pumpkin seed

Dip the eggplant slices in the beaten eggs, then in the homemade bread crumbs. Bake for 5 minutes on each side at 350° F on a cookie sheet.

Cover the bottom of a baking pan with a thin layer of smashed tomatoes. Make a bottom Layer of eggplant and cover with a thin layer of goat cheese, then a layer of smashed tomatoes. Sprinkle dried herbs over the tomatoes. Repeat the layers until you run out of eggplants. Cover the top layer with tomatoes and sprinkled powdered pumpkin seeds.

Bake for 45 minutes at 350°F or until golden brown.

Mushroom Soup

- 8 ounces fresh mushrooms, sliced
- 1 handful green onions, chopped
- 3 garlic cloves, minced
- 1 tablespoon oil
- 2 tablespoons all-purpose flour or 1 cup thick potato starch water
- 2 cups water
- 1 cup heavy goat milk cream
- ½ teaspoon salt (or 1 teaspoon hickory branch black salt smudge)
- 1 teaspoon black pepper (or dried chili pepper flakes)

Sauté mushrooms, onions, and garlic in the oil in a large skillet until the onions are soft. Stir in half of the flour or potato starch and half of the water. Stir until it all thickens. Transfer to a larger pot and add the rest of the water. Bring to a simmer.

Stir in cream with the remainder of the flour or starch and add the salt and pepper. Cook on a low simmer, stirring frequently, for 10-15 minutes until desired consistency is reached. Serve with homemade sorghum bread and dipping oil made of 2 parts oil, 1 part vinegar, and a generous handful of mixed dry herbs.

Dove Tacos

Sauté clean dove-breast meat in a large skillet with oil, a small handful of dry herbs, a little salt, and a little homemade wine or cider. Cook until the meat is no longer pink.

To make the tortillas:

- 2 cups all-purpose flour
- ½ cup potato starch liquid
- 1 teaspoon salt (or 2 teaspoons black hickory branch salt smudge)
- 2 teaspoons oil
- ¾ cup goat milk, warmed to room temperature

Whisk the oil and milk together in a bowl. In a larger bowl, mix all other ingredients and then add the milk/oil mixture slowly while continuing to mix. Take the dough out of the bowl, lightly dust the outside of it with more flour, and then knead the dough on the

board for a while. Flatten into 1/8 inch thick round tortillas and fry on a skillet on your stove for 30 seconds on each side. Cover in a bread basket to keep warm.

To make a salsa topping:

Mix chopped tomatoes at a 2:1 ratio with diced onion, then add lots of fresh cilantro or parsley and a small amount of diced chili peppers (to taste), mix well and chill.

Serve dove tacos with a side of quinoa or amaranth porridge (boil the grains in a small amount of water and salt until they thicken into a porridge-like consistency).

About the Author

Nicholas Hyde is a scholar, researcher, and enthusiastic hobbyist. He writes how-to articles and eBooks on a wide range of topics that interest him, from home brewing to survival techniques (actually he considers home brewing to be a survival technique). His style is one that presents a practical education on the topic at hand, which enables the reader to approach their project with both the knowledge necessary to succeed, and the enthusiasm to enjoy it. Hyde lives in Southern California with his wife and writes when he is not kayak fly-fishing.

Books by Nicholas Hyde

Preparing for Off-Grid Survival: *How to live a self-sufficient, modern-day life off the grid*

Harvesting H2o: *A prepper's guide to the collection, treatment, and storage of drinking water while living off the grid.*

Recipe for Survival: *A prepper's guide for putting self-sustained food on your off-grid table.*

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